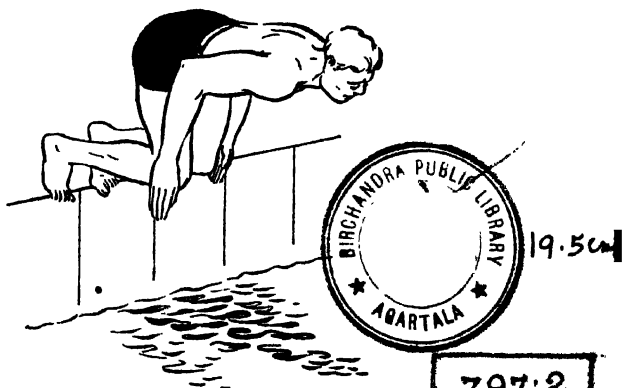


LEARNING TO SWIM

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HARRY LITTLEWOOD

Illustrated by
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Introduction

Not everyone has had the good fortune to receive expert instruction in swimming. One has only to look at bathers in the sea or visitors to the local swimming pool to see that for every good swimmer, there are scores of indifferent ones and many who cannot swim at all. This book is written with the firm conviction that all should learn to swim and that all should want to swim for sheer enjoyment, and, most important, that the enjoyment of swimming is immeasurably increased if it is done well. In order to swim well the beginner must appreciate from the outset that water is a friendly medium in which to take either abundant or gentle exercise.

The main premises on which the suggestions given in this book are based are:

1. That complete water confidence is an essential prerequisite to good swimming. Lip service is too often paid to confidence in the water and when it is taught or practised it is often rushed and hurried and the exercises are looked upon as frills or stunts. One feels that both the learner and the teacher think 'never mind this, let's get on with the swimming' just as the rugby player is reputed to have said 'never mind the ball, let's get on with the game'. My belief is that water confidence for the swimmer is as necessary as the ball to the rugby player. It is wrong, even foolhardy, for any beginner to contemplate learning swimming strokes until water confidence and a full appreciation of the water's qualities have been acquired and understood.

2. That understanding of the nature of the water cannot be acquired by the use of artificial aids, or by that serious deterrent to good swimming – human support. The beginner must dispense with aids and supports in his early practices and learn to accept that the water around his body is the finest supporter that he can have.

3. That land exercises as a means of learning limb movements are of little use. Recent study of skill transference prompts one to feel that although the movements of a swimming stroke can be perfectly executed on dry land, there is little, if any, ‘carry over’ value once similar movements – for they can never be the same – are performed in water. Learning a skill out of its context has little, if any, value.

There is no quick and easy way of learning to swim well. There is a thorough way, and the average person who concentrates on confidence exercises for his first few visits to the baths will find that within eight visits he is capable of swimming and that his rate of progress henceforward will be surprisingly rapid. The poor swimmer, too, is advised to practise these exercises forgetting for a time his indifferent strokes, and his swimming will be gradually transformed.

The progressive practices in *Learning to Swim* are based on practical experience of teaching children and adults and of conducting courses for teachers. Many of the early confidence exercises were introduced to me by Mr. H. P. Popham, for many years teacher in charge of swimming at the London Nautical School. His ideas were in many ways revolutionary and in consequence they have never been entirely accepted by the swimming world. I am indebted to him for all his help and I can only hope that this book will, in some small way, justify his beliefs and help to promulgate his ideas.

Why Learn to Swim?

WE do not know when man first found that he could keep afloat or propel himself through water, though we may imagine some early Briton falling from his coracle and, after his first panic at finding himself in a strange element, discovering some struggling movements which carried him to safety, later perhaps daring to enter the water again to show this discovery off to his friends. Or perhaps in kindlier climates, the cool sea lapping on sandy beaches invited boys to venture gradually farther from land, and they in their play evolved different strokes that propelled them through the water.

We do know from wall carvings that the Assyrians were capable of moving about in the water. Leander swam the Hellespont to meet Hero many hundreds of years before Christ was born, and the Greeks and Romans certainly practised swimming as an accepted athletic pursuit.

What stroke was used in ancient days has to be surmised. The Ancient Briton would most probably have used a sort of dog paddle, with his head out of water and his arms pawing in front of him. This is the stroke that was used by boys years ago when they taught themselves in river or reservoir, a natural rudimentary, but by no means easy, method of propulsion. It is only in more recent years that strokes have been classified. Breast stroke, side stroke, trudgen, crawl and back crawl and, more recently, dolphin. The evolution of swimming strokes has been brought about by constant study of the scientific principles which govern

the ability of the human being to become an amphibious creature. Of the value of this ability there is no doubt and today we are assured that most boys and girls are given an opportunity of learning to swim.

Swimming has become an important part of a school's curriculum, but one should not blithely accept this without pausing to think why it has come about.

Educationalists realize that swimming is a form of exercise that helps to promote health; its value as an all-round exercise is never disputed. Few activities, except perhaps cross-country running and long distance ski-ing, offer such a general toning to the body. Regular swimmers can boast good physiques. A series of detailed physiological tests carried out on young swimmers provided evidence that these young people had excellent physiques and also revealed other factors that one associates with abounding good health – a quick recovery rate after strenuous exercise, low blood-pressure readings and relatively low pulse rates when at rest. These were young swimmers who had trained hard and practised assiduously, but one must not be misled into feeling that to swim well necessitates long hours of strenuous training. One can enjoy swimming without expending large amounts of muscular effort or without having to develop considerable muscular endurance. The competitive swimmer will need these two factors, but swimming is an ideal recreation as well as being a first-rate competitive sport. One of the greatest values of being able to swim is the recreational aspect. Boys and girls can enjoy their trips to the river, lake or lido, the adult can enjoy his annual dip in the sea and even the aged and infirm can often use swimming as a means of exercise when all other forms of enjoyable recreation are beyond them. Those who have never felt the sheer joy of being water-borne have missed much. The swimmer has all the pleasures of the non-swimmer plus the infinite enjoyment

of swimming – he has a new and wide sphere in which to seek his recreation.

One must not look upon swimming solely as a pleasurable pursuit or a means of keen competition. The competent swimmer may well be the means of helping to save life. It was Confucius who said 'He that saveth a man's life is greater than he that taketh a city'. A series of tests initiated and administered by the Royal Life Saving Society offer every inducement to the swimmer to train as a life saver. From a more selfish point of view the competent swimmer has a greater chance of self-preservation should he or she meet with difficulties in the water.

It is invidious to compare one form of exercise with another, but swimming has certainly so many advantages that one is tempted to look upon it as perhaps ideal. A swimmer is not expected to be a member of a team; he does not necessarily require the presence of a partner or an opponent; he does not have to provide himself with expensive equipment, and even the weather need not affect him. He can swim alone for exercise and enjoyment, he can swim with others for social pleasure, he can swim when young and swim at his own speed and his own rate until very late in life.

As well as having value for its own sake, as a competitive sport, as an enjoyable recreation, or as a means of saving life, swimming also opens the door to other fields of activity. Many swimmers now spend their holidays and leisure time in underwater exploration, diving below the surface and studying the sub-marine flora and the fauna – thus opening up to themselves a whole new world. Sub-aqua clubs have been formed all over the country and the British Sub-Aqua Club helps to advise and administer this relatively new activity. Water sports such as canoeing, sailing, rowing and water ski-ing are open *only* to the competent swimmer and no organization should encourage anyone to take part

in these activities unless swimming competency has been proved.

The reasons for learning to swim need no further emphasis, but what must be stressed is that if the values and benefits of swimming are to be reaped to the full, then the aim of every teacher of swimming should be to teach his pupils, child or adult, to swim *well* so that swimming as an activity is not a painful, fearsome feat of endurance, but a relaxed and pleasurable physical enjoyment.

The First Visit to the Pool

YOUR first visit to the pool need not fill you with apprehension. Remember that you are about to learn a whole series of skills in a new medium and once you have attained just a few of those skills you will have added much to your enjoyment of life. If you feel very nervous at the thought of going to the baths alone, persuade a friend to go with you to give you a little moral support. It might well be that your friend, too, is a non-swimmer. This has many advantages from your point of view and the practices in the next chapter can become very enjoyable carried out with another learner.

The majority of swimming pools are the property of the local authority. They are, in fact, constructed and maintained by money from the public rates and therefore the property of the public — *your* property. It is then your duty and that of every other member of the public who uses the swimming bath to take the utmost possible care in its use.

Personal cleanliness must be stressed and it is most regrettable that some people ignore simple rules that should always be observed. The fact that you bath daily is not good enough. The human body perspires, this is a natural method of excretion and a means of regulating the body temperature. The perspiration collects dirt and it is therefore your duty to take a shower immediately before entering the water. Most baths have shower baths with liquid soap available for this purpose and on your first and every subsequent visit you should make use of them.

Perhaps the best way of coping with personal hygiene is to make a habit of certain drills that should be carried out on each visit.

1. Blow your nose thoroughly before leaving your changing cubicle – you cannot take your handkerchief into the bath with you.
2. Visit the W.C.
3. Take a shower bath, making use of the soap provided.

If these drills are carried out conscientiously you will be playing your part in maintaining high standards, and furthermore you may well help to influence by your example those who are not quite so scrupulous.

A smaller point, but nevertheless an important one, is the care of your own bathing costume. After each visit to the swimming pool you should rinse it in clear water before drying it. This will ensure that it is clean before you use it again and will do much to give it a longer life. Once again it is your property – take care of it.

On your arrival at the pool get to know its layout and facilities. The attendant will help you, and since most bath attendants are themselves very interested in swimming and most of them are very helpful, it will prove well worth while for you to make a friend of the attendant. You will find that he will take a keen interest in your progress and will give you a pleasant welcome on your subsequent visits.

You should look for the diving boards because these are always placed at the deep end – the end that you will *not* be using for your first visits. Your place must be in the relatively shallow water until you have become water-confident and are able to swim. Most baths indicate too on the side of the baths or on the walls the varying depths of the water. Underneath the diving boards will be the deepest water,

sometimes as much as twelve feet deep, rarely less than six and a half feet deep. The bath will then gradually get shallower until in the shallow end the depth will not be more than three feet. This is the end that you should use. Sometimes you will see non-swimmers walk down the steps of the deep end and then, clinging to the rail, pull themselves along. This is not a display of courage, but of foolishness. If you are in the deep end you should be a swimmer and you alone are to blame for any accident that might befall you while you are there.

The length of time that you will spend in the water will vary with your proficiency. At first your time may not exceed fifteen minutes or perhaps even ten, but during this time you must practise hard and carefully, do not waste a second, do not let your body become cold by standing gripping the bath rail and shivering; carry out the water confidence exercises in Chapter 3 until you are really proficient.

Many people think that going to the swimming bath helps to bring on colds. This is not true if you do not allow your body temperature to drop, and this will not happen provided that you are active when you are in the water, which is generally around 72°F. Once you have carried out your practices and you are becoming tired, get out of the water and dry yourself thoroughly. This should be done vigorously without loss of time. It is a mistake to hang about by the bath, watching others while you are wet, and this is why those who complain of catching cold after swimming do so. Go to your cubicle or the changing room and make sure that you dry yourself thoroughly. You can, if you wish, give yourself a gentle massage to encourage warmth. Rub your legs with the palms of your hands starting from the ankle and working upwards, then, with one hand rub the opposite arm from the wrist to the shoulder; rub each limb some twenty times and then using

circular motion, rub the trunk. This massage will tend to dilate the small blood vessels near the skin and thus bring blood nearer to the surface, giving a pleasant feeling of warmth. After the massage dress quickly and the danger of catching cold is eliminated.

3

Confidence in the Water

THE greatest single attribute that the beginner can develop is confidence in the water. Confidence does not mean bravado, it means a genuine appreciation of the water as a friend, as an aid to good swimming. Our early lessons must emphasize this friendliness and the first practices must be devoted to creating a genuine trust in the water. Many people can swim, but will never be good swimmers, swimmers able to enjoy moving easily, though not necessarily at speed, through the water. They will never swim well simply because they have failed to spend time in developing water confidence and as a result their body positions in the water are poor, their strokes are performed jerkily and they have difficulty in breathing correctly. The first lessons of swimming must aim to create this trust in the water and time given to this will prove to have been very well spent when actual swimming strokes come to be taught.

Breathing and Head Immersion

Some of this trust in the water can be created before ever visiting the swimming pool and indeed it is as well for every beginner to start before his first visit. Use the wash bowl filled with tepid water and practise putting your face into it until you can do so without shrinking. Some can do this easily, others find it a loathsome practice; but no matter how much they dislike it, if they persist they will find that

soon they begin to enjoy the feel of the water splashing over their face.

Next inhale, gently, not too vigorously, and then lower your face into the water in the bowl and after some four or five seconds, blow out through the mouth with lips pursed and of course remember to take your face out of the water before you attempt to breathe in again.

Repeat this and hold your breath for longer periods, blowing out through your nose instead of your mouth. This may cause a tickling sensation, but with repeated practice you will become quite accustomed to it and perform these exhalations quite naturally.

Once the strangeness of having your face immersed has worn off you can test yourself to see how long you can keep your face in water without strain. It is important to hold your head, neck, and particularly your chest naturally, not tensed, and it will help if you remember not to breathe in too hard, not to fill your lungs almost to bursting point.

Keeping Eyes Open

Now open your eyes while your face is under water and keep them open while you blow out. Some may find this difficult, but again you must persist, until to have your eyes open under water is not a strange happening but a habit. Having your eyes open is one of the things you must learn, since until you have learned it you cannot be said to be on friendly terms with the water. Invariably people who do not open their eyes under water seem to have to rub their eyes before they can open them when their face comes above the water, but those who keep their eyes open never have the sensation that their eyes are full of water. The good swimmer never rubs his eyes, he has kept them open and in consequence has avoided collecting water between the top and bottom lashes of his eyes. When the eyes are closed

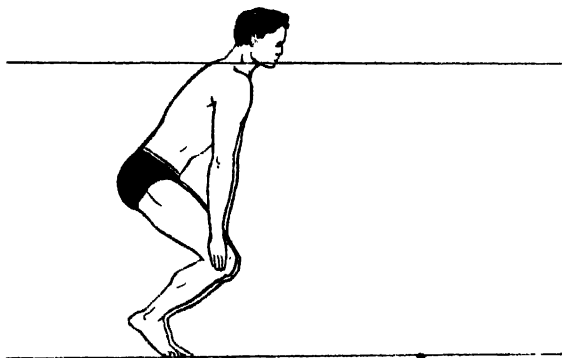
the lashes form a brush which holds the water and once the eyes are opened the separation of the lashes releases the water into the eyes. If the eyes are opened under water, that water flows away as the face is raised and none is retained by the lashes. Keeping the eyes open is not harmful to the eyes – in fact, many authorities believe that the water will prove beneficial to them. .

Jumping In

The practices outlined above will be of considerable assistance to you and will save time when you go to the baths. They should be carried out regularly and assiduously until face immersion, breathing out and keeping your eyes open under water have lost their fears for you and you get enjoyment from doing them. When you arrive at the bath and you have changed, used the lavatories and had a shower, walk to the shallow end – the one away from the diving boards. As was emphasized in Chapter 2 **the shallow end is your end until you have learned to swim.** Now you have to decide how to get in. Obviously the best way to do this is by diving, but you will not risk that on your first visit, so why not jump in? If this seems a little too ambitious, get a friend to hold you by one hand until your feet are firmly on the bottom of the pool. Jump boldly as if there were no water there, landing on your toes with knees bent, there is no need to be afraid, the water will not be more than three feet deep. When you first get into the water you may have a strange feeling in the pit of your stomach which makes you gasp this will quickly disappear after two or three seconds and it is due simply to the contraction of the large breathing muscle, the diaphragm. This muscle is very sensitive to changes of temperature and that is why you gasp as though you are suddenly short of breath.

Head Immersion

You will feel much lighter in the water than you do on land. Put your shoulders under the water and your chin on the surface; the water will hold you up, there is NO chance of your falling if you are in this position. Hold



1. *Shoulders under the water, chin on the surface*

your breath, immerse your face, open your eyes and look at your toes, even count them, blow out your breath and come up. This will be easy to you because of the practice you have had in the wash-bowl at home. Practise it several times until you feel very confident about it. One thing that must be stressed: there is no need to hold the rail, keep away from it and let the water support you.

Hand Pressures

If you are tall enough, kneel on the bottom. If not, bend your knees in a crouch, with your chin at water level. Shake your arms loose, relax them, and you will see that

they will float up to the surface. Put them about two inches under the surface, reaching forwards from the shoulders, and press them down to the sides, keeping your body crouched and your chin at water level. Once you start to press downwards with your hands you will find that you rise from the bottom. This needs practice until you do it quite confidently. Now do it again, but this time let your arms drive backwards beyond the sides and you will find that not only do your feet rise from the bottom of the pool, but that your body moves forward through the water. Resume your first position by moving your arms gently back through the water and repeat. Practise this until you can go boldly across the bath by this method.

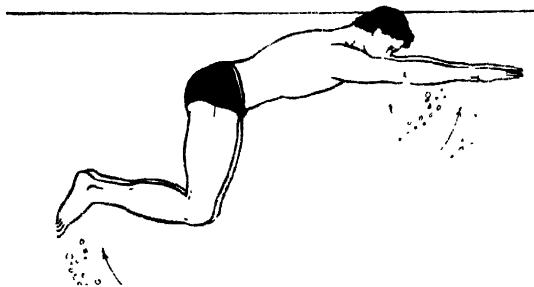
Recovery Out of Water

Now try the same method, but instead of moving your arms back gently through the water, relax them and swing them *out* of the water back to the starting position. (This is known as a 'recovery' movement, about which more will be said later.) Avoid slapping the hands on the water as they swing towards the surface, but place them gently without making a splash. Remember that if you fight the water it will resist you instead of helping you. Proceed with this until you can confidently lean forward, trusting the water to support you, and allow your face to go into the water with eyes open before you press your hands downwards and backwards.

Lying Down and Standing Up

You may now practise falling and standing up. Place your arms easily forwards with hands at shoulder width apart and palms downwards, lean forward with your face in the water, eyes open, until your legs are straight and together, but not held rigidly. You are now lying in the water. Press downwards with your hands, lift your head

up and raise both knees towards your chest. You will now be standing up. This is a very important but very simple practice. Repeat it again and again, waiting a little longer each time before regaining the standing position. You will find that the water will keep you up, you are now able to float and move in a glide through the water. Try now to increase the glide by pushing your feet against the bottom of the bath before you lie on the water, remembering all the time to keep relaxed.



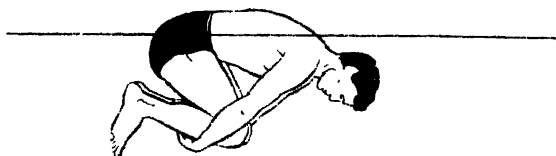
2. Lying on the water

Stand up straight with your chest out of the water and your arms held above your head and fall forward, keeping the body straight and not bending at the hips. Now stand upright again with arms raised vertically above the head, take a breath and hold it, bending the knees until the head is under water. The feet will remain on the bottom of the bath because the weight of the arms out of water is unsupported. Lean a little forward and push off into a long glide. Glide as long as you can reasonably hold your breath and then, using the method already practised, stand

up. You will find that to glide six or seven yards becomes increasingly possible and this gliding will prove to be invaluable in later sessions, since you are developing the fundamental starting position of both front crawl and breast stroke. At the same time, of course, you are learning that the water will hold you up and support you.

Mushroom Floating

Another good test of buoyancy is to try balled-up or mushroom floating. Assume the position of shoulders under the water and chin resting on the water and then gradually lean forwards so that your face and part of your head is immersed. At the same time grip your knees with your hands and hug them to your chest. You will find that



3. *Mushroom floating*

your feet leave the bottom of the bath and you will bob about on the water like a cork. All that will be above the surface will be the curved middle of your back which will appear like the top of a mushroom. You can hold this position as long as you can reasonably hold your breath without strain. It is a very relaxed position and gives you further proof, should you require it, of the friendliness and helpfulness of the water.

Once you have practised mushroom floating until it is no longer a strange position, try it again and, once you are

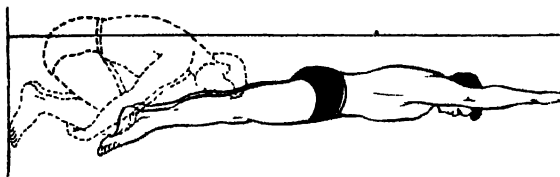
waterborne, breathe out through your mouth. This exhalation of the air in your lungs will tend to make you sink, but once again the water will bring you back to the surface quite safely if you relax and allow it to do so. Get used to going down in the water, looking around you as you go. Some people, without much difficulty, will soon find that by blowing out they can go to the bottom of the bath and even sit there.

Gliding

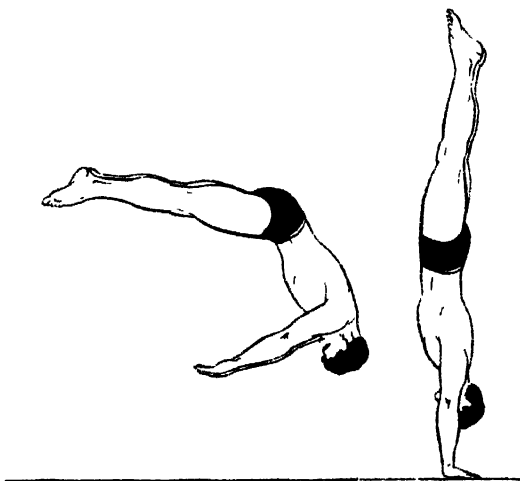
Most of the practices already mentioned have been carried out away from the bath side. Once you have mastered mushroom floating, go to the side of the bath and face towards the water. Float like a mushroom and when your feet or buttocks feel the bath wall, press against the wall and straighten your legs, bring your arms above your head and you will glide easily and quickly through the water. When your glide comes to an end, use the method of standing up already learned and turn round to see how far you have travelled. Go back to your starting position, try again and see whether you can increase the distance you travelled the first time. This is an excellent practice for developing a good body position in the water. One wishes that those swimmers who struggle through the water with their heads held up and their bodies at an acute angle to the water, had used it before they started to learn actual strokes, they would find their swimming so much easier and so much more enjoyable.

Now use the same method of pushing away from the side of the pool, but instead of gliding on the surface of the water, drop your head, sweep sideways with your arms and try to touch the bottom of the bath with your hands. After several attempts, try to place your hands on the tiles at the bottom and bring your legs out of the water. You will be

surprised at the ease with which you can stand on your hands; this is further evidence of the aid the water gives you. To hold a hand stand on land is a difficult gymnastic feat, but to hold it in the water is relatively a very simple task.



4a. (*Mushroom floating at side of bath*) push off and glide

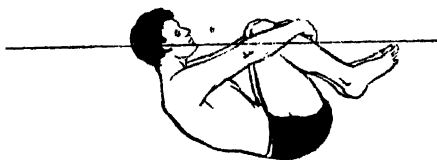


4b. *Trying to touch bottom of bath*

4c. *Hand standing*

Gliding on the Back

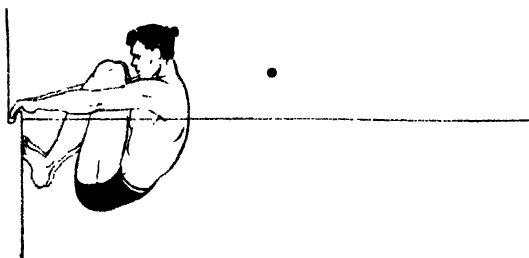
You have now had much practice at floating and gliding in a prone position, that is with your face downwards, but all of you will want the delight of swimming on your back,



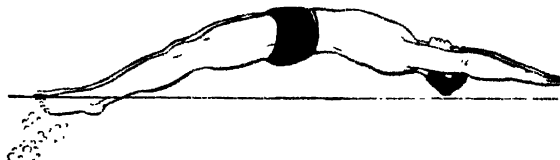
5. On the back, hugging knees

which to a very large number of beginners, is easier than swimming face downwards. First of all try holding your knees as you did for mushroom floating, but instead of bringing your head towards your knees, hold it back and look up at the roof of the bath. Hug your knees and once again you will find that you will be waterborne. It is, of course, important to learn how to regain your standing position and if you remember to sit down and raise your head you will place your feet on the bottom, and if you reach forward with your arms you will stand up. Practise standing up so that you begin to do it automatically, always remembering not to fight against the water, but to let it assist you in your movements. Stand up in the water, extend your hands above your head and this time fall backwards; you will float on your back, hold it for a few seconds and stand up. Continue to practise supine (face upwards) floating and standing up until you are as confident of doing so as you have become of floating in the prone (face downwards) position. Move to the wall of the bath and you may now hold the rail – the first time that you have needed

to do so since your swimming lessons began. You are not holding it now to give you support, but merely to give you an opportunity of sitting down in the water with your feet against the wall of the bath. Bend your knees and, leaving go of the rail with your hands, straighten your legs. This will push you away from the side in a back glide. Travel as far as you are able and then stand up. Repeat this again and again until you are confident of pushing from the side really strenuously and gliding for several yards. Here you are developing the position you will be required to adopt in the water when you start to learn back crawl and back stroke.



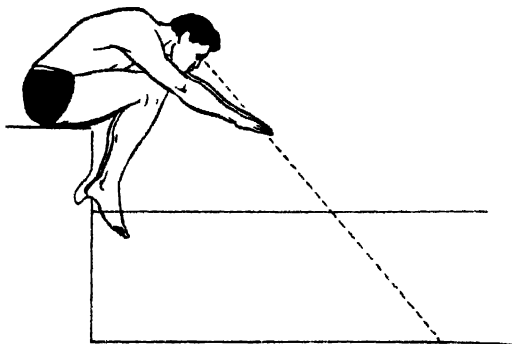
6a. Holding rail for back push off



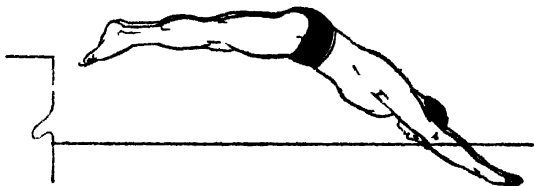
6b. Back push off

Diving In

There is now no reason whatsoever why you should not learn to dive. You have already learned to push off and touch the bottom of the pool, revise this and then either sit on one of the steps or preferably climb out of the bath and sit on the bath side with your feet slightly apart, feet on the rail and knees bent and apart. Raise your arms forward with the palms down and drop your chest on to your knees.



7a. *Sitting on bath side looking at aiming mark*



7b. *Body stretched on entry, and head down*

Now look for an aiming mark on the bottom of the bath and about five feet from the side where you are sitting. This mark may be a tile or some fixed point on which you can rivet your attention. Point your hands toward this mark, then sit up again. Repeat this, remembering to keep the hands with the palms downwards and the first fingers and thumbs touching one another. There are now two important, but simple factors to bear in mind. In order to make a 'clean' entry into the water your head must be *down* and your body must be *stretched*. If you can remember these two points then your first 'head first' entry will be a good one, you will not smack the water with your chest or do a 'belly flop'. Your body will be streamlined and your entry a pleasant, although a novel one. Take up your position again. Sit comfortably, knees apart, heels resting on the rail. Look for your aiming mark and point your hands towards it. Drop your chest to your knees and, still looking at your mark, keep your head down so that your biceps are touching your ears. Now *stretch* the arms to reach the surface of the water. In order to do this you will, of course, overbalance and it is then that your whole body must *stretch*. Reach for the water, stretch your hips, knees and ankles and you will then enter the water in a straight line. You will almost certainly touch the bottom of the bath with your hands, but this will not hurt you as the body moves slowly through the water. Allow your hands and body to float to the surface, do not struggle or fight against the water in an effort to regain the standing position. Your early water confidence exercises will have taught you how the water is prepared to help you, and a test of whether you are really appreciative of what the water can do to help, is the way you regain your standing position after your head-first entry – your first attempt to dive.

As with other practices, this first dive must be repeated until you are thoroughly confident and sure that you can

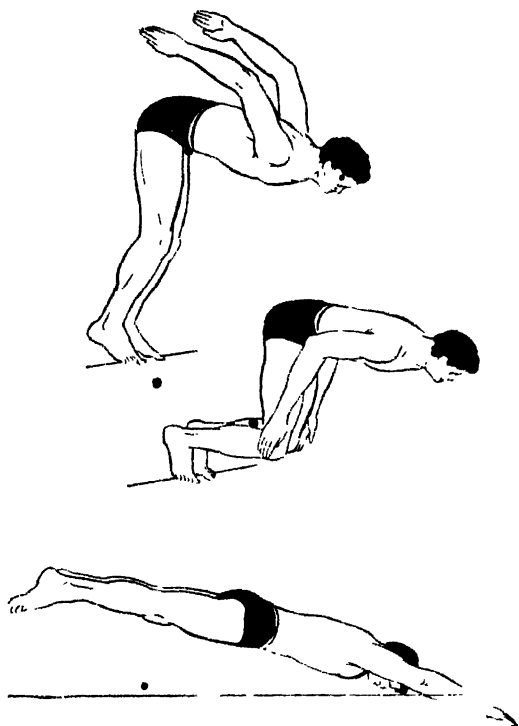
make a straight entry every time. The two salient points to keep repeating to yourself are – 'head down' and 'stretch'. Divers who fail to bear these points in mind make poor entries.

Racing Dive

The next stage in learning the racing dive is to crouch on the side of the bath instead of sitting. The same technique is followed, but now you are slightly higher from the surface of the water and you will be able to use your feet to push you into a good *stretch* position. This drive from the feet should enable you to get a more pronounced stretch, but again care must be taken to keep the head down. Once you have become proficient from the crouch or squat position you can try a racing dive, the dive that competitive swimmers use for starting their races! This might sound a ridiculous thing to attempt for the non-swimmer, but it is a worth-while accomplishment which will be a considerable help when you start to practise swimming strokes.

From the crouch position at the bath side you should gradually cut down the bend in your knees and the forward lean of your trunk until you stand with feet apart and your trunk and arms relaxed. It will probably help too if you practise a few land exercises, since if your dive is to be effective you must co-ordinate most carefully all the movements you make. The following exercises should be carried out near a wall and you can try them at home and thus save time at the baths:

1. Face the wall standing as close to it as you can. Raise your arms above your head, placing the palms on the wall, with thumbs touching each other. Now stretch up the wall, rising on the toes so that you stretch the body as high as you can. Drop your forehead and look downwards. This is the position that your body should be in



8. *The racing dive*

after the take off Practise this repeatedly, each time trying to get a greater distance between your toes and your finger-tips, thus ensuring the maximum 'stretch'.

2. Try the same movements with your back to the wall and your heels some nine inches away from the wall.

3. Again with the back to the wall, but with the heels a little farther away from it, bend the knees and lean slowly forwards until the arms are hanging loosely downwards, the hands near the knees. Swing the arms forwards and upwards and stretch the body completely until you are in the same position as was described in the previous two exercises. Try to hold the balance on the toes and practise until this balance is held with confidence.
4. Using the same starting position as in Exercise 3, swing the arms forwards and backwards so that each hand describes a circle of about fifteen inches diameter, the right hand travelling in a clockwise direction and the left hand anti-clockwise. The arms should not be held stiff, but should be as relaxed as possible.
5. Now aim to combine Exercises 3 and 4. You may give yourself the command 'Go' and then circle the arms as in Exercise 4, following immediately by swinging the arms forward and upward with the stretch of the whole body rising on the toes and controlling the balance.
6. Repeat this, but jump in the stretch position, landing lightly on the toes and holding the stretched position on landing.

The above practices will have taught you the arm movements and the correct stretching that is required when you attempt your racing dive or start. You must now practise from the bath side, aiming to achieve the full stretch as your body is in flight before you enter the water.

At the side of the bath curl your toes over the edge and assume the starting position that you have used in your last exercise against the wall. Your feet are apart – some twelve inches – and your body must be as relaxed as possible. You must now look for another mark – you will remember that when you were sitting at the bath side you chose a mark five

feet away from your feet and on the bottom of the bath. Now that you are standing and now that your entry will be a shallower one, you must select a mark ten to twelve feet away and *on the surface*. This is to be the point at which your hands will make a hole through which the rest of your body from the crown of the head to your toes will slide. If you remember that the two cardinal points to bear in mind are 'head down' and 'push and stretch' then this clean entry will be performed.

Once you have selected your mark, circle your hands, swing your arms forward and at the same time push off and stretch, keeping the head down, then allow yourself to float to the surface and stand up. Repeat several times, but once you have floated to the surface allow your body to glide; you will find the impetus that you have gained from the push from the side of the bath will develop a glide of several yards. The entry is a shallow one, you will not go deeply under the surface and you will use a depth of water that allows you to stand comfortably.

The confidence exercises that we have described above will form a thorough basis for all your future swimming. I have known adult beginners to learn them all after three visits to the baths, others have taken longer. Do not be discouraged if you seem to be taking longer, some people have more natural confidence than others. The important fact to remember is that you do not proceed to a more advanced stage until you have thoroughly mastered the first, and if you find that your confidence fails you at any particular step, go back to the previous practice until your confidence returns.

Artificial Aids

No mention has been made so far of artificial aids. They are to be deplored at this stage in learning to swim. The

use of rubber wings, tyres, and other such impedimenta does not give confidence, but makes the beginner feel that he needs such help to keep him afloat. That is for the water to do, so do not be persuaded to have anything to do with them. One still sees instruction being given to a pupil attached to a piece of rope while the instructor pulls the frightened pupil towards him. How long it takes to teach a beginner to swim by this method, if ever it succeeds, I have never had the patience to observe. I am sure that the finished product can be at best a most indifferent swimmer. The old method of supporting one another is equally bad, very few supporters are sufficiently knowledgeable of swimming positions to support adequately. Invariably the supported person has his or her face well out of the water and, again, to acknowledge that you require someone to hold you means that you have no faith in the essential quality of the water.

It cannot be too strenuously stated that artificial and human aids for the beginner in swimming are a contradiction in terms. They are not aids, but deterrents and anyone who wishes to learn to swim, to swim well and to enjoy swimming, should avoid such 'aids' and make friends with the water – the finest aid of all.

Which Stroke to Learn First

Now that you have mastered all the confidence exercises you have reached the stage of learning to swim, of learning how to propel yourself through the water using accepted and co-ordinated movements of the legs and arms. It is folly to attempt any of these strokes until you are supremely confident in the water, but once you are you will find that learning the strokes becomes easy and quick and your rate of progress quite remarkable.

Most people would agree that there are four or perhaps five modern strokes, all of which should be learned:—

1. **CRAWL STROKE** — Still the fastest modern stroke when performed correctly, and a stroke that is used both for short sprints and for swimming the Channel.
2. **BREAST STROKE** — A delightful stroke to perform both as a racing stroke (although it is not nearly so fast as crawl stroke), and as a recreational stroke. It is necessary to be able to swim this stroke to life save, and all underwater swimmers use it since none of its movements are performed out of water.
3. **BACK CRAWL** — When it is done correctly, this is the fastest known stroke performed on the back. Many beginners now learn it first since there is little or no difficulty with the co-ordination of the breathing.
4. **BUTTERFLY STROKE** has developed from breast stroke in an attempt to speed up the latter. Butterfly stroke at

one time came under the same rules that govern breast stroke, but is now judged by its own set of rules. Butterfly stroke is becoming increasingly popular both with children and adults.

5. **ENGLISH BACK STROKE** – Many coaches and instructors ignore this delightful stroke. It is pleasant to perform, and with a slightly modified kick it is used in life saving. It is no longer a competitive stroke since it is not sufficiently speedy.

There are, of course, other strokes that you will see and that are described in books and you might be persuaded to try them. If you learn the five that have been mentioned you will have no need to learn the others, since if you consider such strokes as side stroke, trudger stroke, single overarm and double overarm, you will realize that these strokes were designed to increase the speed of breast stroke and to some extent were the origins of modern crawl stroke. Thus, if you can swim crawl stroke and breast stroke there is no need at all to learn these 'hybrid' strokes. They are out-of-date and of interest only to the historian of swimming.

Personal Choice

The choice of which stroke to learn first is a personal one, and will depend largely on your own feelings, and persuasion. Many will insist that you should learn breast stroke first, stating that it is the easiest stroke to master. This is not true, because a good breast stroke calls for very careful co-ordination of the legs and arms, and the tracks that these limbs describe in the water are not natural movements but movements that require considerable practice if they are to be performed well. Some individuals, however, still choose to learn it first and many instructors continue

to teach it as the first stroke. Others prefer to learn back crawl first, since they seem happier on their backs. Their first stroke should then be back crawl as they will learn to swim in a much shorter time.

The question that you must now ask yourself is what stroke are *you* going to learn. Forget for a time any question of racing, you should never attempt to race over a distance until you can swim three times that distance in very good style. Too many swimming styles have been ruined by the desire to move faster and faster through the water. To do this often leads to a faulty technique which will become a habit, and one you will find difficult to eradicate. If, when practising, you find that you are developing a fault, it is *not* a waste of time to stop progressive practices until the fault has been eradicated. It is quicker in the long run to go back over the earlier stages of the stroke and practise until that particular technique has become perfect. It is only the *correct* movement that when practised becomes perfect. The choice of the stroke you learn first, then, must not be influenced by your desire to swim fast, but rather by the stroke that you will learn quickly and effectively. For the vast majority of beginners the order of stroke learning might well be:

1. Crawl and back crawl.
2. Breast stroke.
3. English back stroke.
4. Butterfly stroke.

It will be seen later that the movements that the limbs perform in crawl and back crawl strokes are very natural movements, much more natural to perform than those of any other swimming stroke. The leg action of breast stroke and English back stroke are composed of a bending outwards of the legs and a vigorous closing sweep.

It has been noticed that swimmers who have learned these strokes first have difficulty in changing to the easy rhythmical swinging of the legs that is required in the crawl and back crawl strokes. On the other hand, you will not suffer from a similar handicap when learning breast or back stroke leg action once you have mastered the rhythmical leg drive of the crawl strokes. At the same time, many who advise learning breast stroke first do not, in effect, perform a correct breast stroke, but an ungainly, unco-ordinated struggle of arms and legs against the water with the head held high.

Whatever stroke you decide upon to swim first, it must be re-emphasized that it is sheer folly to hurry the learning. The confidence exercises that were mentioned in the last chapter are of *paramount* importance and to start learning a definite style of swimming before you are able confidently to glide in a straight, relaxed position from a push off, keeping your eyes open under water and blowing out through your mouth or nostrils while your face is submerged, will make learning a very tiring and tedious business. It will take you much longer to learn to swim and the stroke that you finally produce will almost certainly be a laboured and difficult style to produce.

Choose your stroke only when you have become an easy 'glider' through the water, and time spent developing this easy, relaxed glide will be saved when you start to learn your first stroke.

Learning Front and Back Crawl Strokes

ONE of the advantages of attempting to learn two strokes simultaneously is that the variety of practice affords you some relaxation. Many beginners when trying to acquire a new skill often work so hard at the movements they have to perform that the muscle groups being used become fatigued and the standard of the performance of the movements rapidly deteriorates as a result of this fatigue. It is well known that fatigue can be offset not only by a complete cessation of exercise but also by performing a different type of exercise. Thus, if you can combine the learning of two different styles of swimming you will be able to practise for a longer period, your practice will be more enjoyable with more variety, and your progress towards the goal of competent all-round swimming will be quicker.

It is important to realize from the outset that there is no such thing as *the* front crawl or *the* back crawl. If you were to watch a tall lithe American competing in a free style race against a squat bow-legged Japanese they might both be swimming what could be defined as front crawl style, but the two styles would differ considerably. The length of the American's arms compared with that of the Japanese would call for a tailoring of the stroke to fit the vastly different physiques. The leg action of the two swimmers would vary since the rhythm of the leg drive must fit in with the strenuous propelling of the arms. Similarly, if ever

you had the great pleasure of seeing those two magnificent English girl back crawl swimmers, Judy Grinham and Margaret Edwards, you would note a difference in their styles. These two girls were the best back crawl swimmers in the world but they did not swim identical styles, because their coaches adapted the stroke to fit the physical make-up of the swimmer in question.

You, too, will have to adapt the stroke to your own physique. You may be long or short, fat or thin; you may be very supple in the shoulders or very stiff, your legs may be straight or bowed, you may have the chest of a bull or a mouse. Thus, we must not think of *the* crawl or *the* back crawl but of crawl and back crawl, a series of co-ordinated muscular movements that will send your body economically through the water. Do not despair because you find that your hands are small and you know that if they were several sizes larger it would be an advantage to you in swimming. You will still swim and swim well, and later, if your enthusiasm is such that you wish to develop into a really good swimmer, you should take the advice of a first-class swimming coach who will help you, after studying your style, to swim better, to make use of your physical attributes and to minimize your physical weaknesses. No matter what your physique, there are certain actions of the body and limbs which must be carried out.

Look on your swimming strokes as a co-ordinated series of movements that are designed to have the greatest effect with the minimum of effort. This realization will help you to obtain the optimum result.

Leg Action

The first limb action to consider is undoubtedly that of the legs. Opinions differ about the leg action, but all authorities agree that it should be learned first. Remember

that we are to learn the leg action for both back and front crawl, and the muscular action required for both swimming styles is the same – another very good reason for attempting to learn both styles together. You make this movement thousands of times every day, except that when you do it you are in an upright position, for the modern crawl and back crawl leg action is almost the same movement as walking. It is important for you to bear in mind that the leg action is *not* a kick but a swing. The movement is initiated by the hips and the leg is relaxed throughout. Do not concern yourself with what happens to the knee, but concentrate all the time on a free hip swing keeping the knee and particularly the ankle relaxed. If you stand on one leg and let your other leg swing from the hip, making an action as though you are trying to shake off your shoe, this will give you an idea of what the leg action is like. Of course, you will work in the water with both legs, one following the swing of the other. You may if you wish familiarize yourself with the leg action by sitting on the edge of a firm table or any other piece of furniture that will allow you room to swing your legs backwards and forwards. If you swing one leg forwards and the other backwards this is a similar movement to the one that you must practise in the water. Do not spend long on land practices, they are of little value to you except to show you the physical movement that you will perform. Once you practise the movements in the water, the skill required is different because the water will offer resistance to your movements and also because your body will be in a different position and supported by the water.

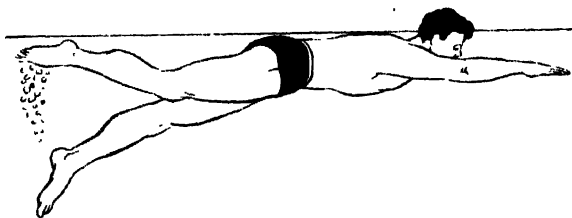
Let us now consider how best to learn the leg action of both back crawl and front crawl at the baths. You are capable of pushing off and gliding both on your front and on your back. Revise these practices so that you feel that, both prone and supine, your body is relaxed on the water.

When you are face downwards hold your arms easily above your head, and when you are on your back have them at your sides. Do not start swinging with your legs until you are thoroughly comfortable in both positions.

You can vary your revision by doing several glides on the front followed by several glides on the back, regaining the standing position, by the methods you have already learned, when the glide ceases. You may alternate a push off and glide in the prone position with a push off and glide supine or if you wish to attempt a new practice you may roll over from one position, to the other during your glide - this will show real water confidence. In order to do this, press one shoulder in the direction of the roll and force the hips round in the same direction as your shoulder, then relax again.

The Leg Swing with a Glide

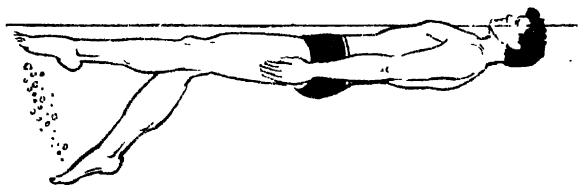
After the glides you may now start to practise the leg drive or leg swing. Push off from the side, face downwards, and then start to swing your legs up and down remembering that it is the hip that must do the work and not the knee. The whole leg must move easily. Do the movement slowly at first, letting your leg go down about a foot and a half below the surface of the water. Try not to



9. *Leg action - Front Crawl*

make any splash at all; if you do it means in all probability that you are using your knees and kicking rather than swinging your legs from the hips. You will of course find that the knee will bend, but this is because your legs are relaxed. When the leg is depressed in back crawl against the resistance of the water the hinge-like joint of the knee will straighten the leg; when you raise your leg the hinge will tend to close because of the pressure of the water against it, and consequently, there will be a *natural* bend of the knee. As with the knee, so with the ankle, if you allow it to be relaxed in your leg swinging you will find that the water tends to extend (straighten) the ankle.

This leg swinging is a very relaxed and natural movement and you will find that it comes readily. Keep the legs close together in the vertical plane so that the insides of the knee joints pass very close to one another. Once you feel the action developing you may quicken the pace, but keep the swings to a uniform depth. You will have found that these leg swings take you along fairly quickly; this is because you have now developed a certain motive power. You are now propelling yourself through the water – you are swimming! Practise the leg swing after pushing off and gliding on your back. It is a good idea to look at your toes when you are on your back – see that they do not emerge from the water. Many people find that they make more rapid progress, that they are able to go for longer periods,



10. Leg action – Back Crawl

when they are practising the leg swings on their backs than when they perform the same action from the prone position. This may be because they breathe quite naturally when they are on their backs and it quite often happens that the beginner will find no difficulty in moving across the width of the bath on his back swinging his legs after very little practise.

Breathing and Leg Action

The difficulty experienced on the front, that is, in front crawl leg action, is that the face is downwards and to take in breath is impossible. To facilitate this two factors will help. First your glide must be relaxed – if you are tensed then you will need to breathe more often. Second, when you feel the need to breathe in, blow out through the mouth just as you did in your earlier practise and, after blowing out under water, slightly raise the head and shoulders and take a quick in-breath through the mouth, then lower your head and shoulders again. Some people are fortunate enough to be able to perform the correct leg swing with their head and even chest riding out of the water. There is nothing incorrect in this and, if you find that your feet are not being lifted out of the water with your leg swing when your head is high, then keep the head high, providing that you are relaxed in so doing – many small children have no difficulty with this – but normally the position your head obtains is one where the water cuts the bridge of the nose, the forehead or the hair line, dependent entirely on your physical structure.

Swimming Lengths

Once you have managed to take breath from the prone position there is no reason why you should not swim widths

and even lengths using both front crawl and back crawl leg action. One word about swimming lengths. Always start from the deep end and move towards the shallow end until you are really proficient, then if you do begin to tire – and you will at first until your muscles get used to the movements – you will be moving into water in which you can stand up without difficulty. Combine your leg swinging practices with water confidence practices and particularly with the dive and the back push off and glide that you have learned. The dive from the side was in reality a very near approach to the correct start for front crawl so that now you may take your dive, then glide and add to it your leg action. This will give you even greater impetus and you should have no trouble whatsoever in crossing the width of the bath. Once you have done that you can take up the position for a back crawl start – hold the rail with both hands, let your hands hook over the rail loosely, walk up the side of the bath until your knees are near your chest. Throw your head back, press vigorously with your feet and straighten your legs, throwing your arms above your head until the thumbs are touching. Relax your body and glide and as soon as the glide begins to lose momentum raise your head slightly and dip your hips a little and start your leg swing.

Using Front Crawl and Back Crawl Starts

Using the starts for both front and back crawl will make useful variety while practising the leg action for both strokes. It is, of course, necessary for you to take certain precautions before you start – when you are entering the water from the side, look to see that you do not dive on to anyone and before your vigorous push off on the back, turn your head to left and right to see that you are not likely to have a collision with someone who is practising swimming lengths

of the bath. You are in the better position to prevent such a collision and it is your duty to take the necessary precaution of looking before you start. You are certain to get much pleasure from these practices and you must spend time on them, for time spent here will prove to be most valuable. You are in effect learning three things, the correct start for both strokes, the correct poise or body position for both strokes and the correct leg action for both strokes. Many people might say that it is impossible to make such progress, but you, by your efforts, can prove them wrong.

Not until you are confident that your leg action for both strokes is a comfortable one and that you can confidently swim lengths of each stroke without feeling strain or fatigue, should you consider attempting the arm action. You will see later that the action of the legs is a powerful balancing agent enabling you to keep a good body poise while the arms work vigorously to propel you and it is therefore of the utmost importance, if you are to develop an easy and pleasant-looking style, that much work should be completed on the leg action before you consider the arm action at all. Once you are satisfied with the leg action you can learn both arm action for front crawl and arm action for back crawl, although by the very nature of the construction of the shoulder joint the movements are dissimilar.

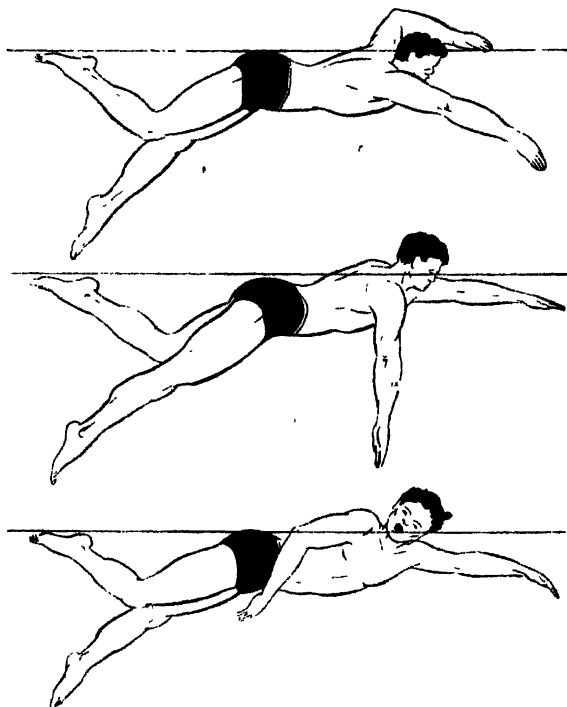
Front Crawl Arm Action

Move into water deep enough for you to stand with your feet some eighteen inches to two feet apart, with your trunk leaning forward so that your shoulders are just underneath and parallel to the surface of the water, and your chin resting on the water - a position you have used in your earlier water confidence exercises. Raise one arm so that it is just

clear of the water. With fingers leading and wrist relaxed, place the hand in the water – this will mean that the elbow is slightly higher than the rest of the arm. Do not *stretch* the arm but reach comfortably forward so that the hand is entering the water in front of the shoulder. Some authorities insist that you should ‘cup’ your hands; this is a mistake, the fingers and thumbs should be held easily together and the wrist must be relaxed. Move the arm, fingers leading, towards the thigh. At first you will be performing a pulling action just as though you had taken hold of a rope and were trying to pull yourself forward.

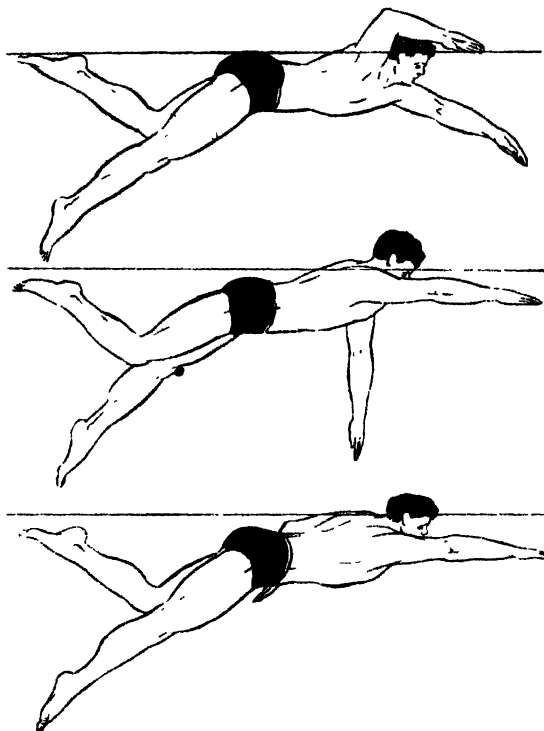
When the arm has reached a depth of between twelve and eighteen inches the pull becomes a press or push as the arm moves vigorously to the thigh. You will find that the arm bends at the elbow in the pulling phase, but that it straightens again as you pass through the pressing movement to the side of the body.* Once the hand reaches the thigh, lift the arm out of the water and start the whole movement again. This lifting from the water is known as the ‘*recovery*’ of the arms and should be carried out as quickly as possible with the arm and shoulder very relaxed. In order to do this ‘*recovery*’ movement bend the elbow easily until the hand and fingers are clear of the water and then push the hand forward to the starting position again. Practise the whole movement several times with the same arm, taking care not to twist your shoulders and to keep your back still, then use the opposite arm. Two most important facts to remember even at this very early stage of the arm movement for the front crawl are:

1. When you are working with your arm in the pulling and pushing movement you must really try to pull and to push. Later these actions will be the vital motive power of the stroke and it is these movements, more than any others, that will drive you through the water.



11 and 12. Front Crawl - complete stroke

2. When you are 'recovering' your arms do it quickly and have your arm and shoulder as relaxed as possible. If you relax you will give your working muscles in the first phase a short rest and you will find that you do not tend to tire so rapidly.



Practise the whole movement with each arm separately until you can perform it automatically and then start with one arm forward and the other one backward (near the thigh) trying to work both arms together, recovering one arm while the other is pulling. This is necessary because

you must not get into the bad habit of being late with the recovery movement. You will see from the diagrams that when one arm has reached the end of the 'pulling' phase the opposite arm is ready to begin pulling. There are good reasons for this:

1. The motive power which the 'arms provide must not suddenly be cut off – there must be a constant source of propulsive power if the body is to glide without jerks through the water.
2. The arm that has recovered and is held in the water in advance of the head is helping to balance the body and to minimize 'rolling'. The opposite arm is digging deeply in the water and unless the other arm is stretched out to support the body, the deep pull will roll the body quite violently.

When you are practising the double arm movement you will find that, if you are doing it correctly, and really working with your pulls and pushes, your body is made to move forwards. This indicates that you *are* propelling yourself, that you *are* developing propulsive power. Do not walk forward with the arm movement unless you make yourself – this is a simple test of whether or not your arm movement under water is being effective. If it is, do not resist it, let the arm carry you forwards. Some beginners find that the movement they are performing with their arms is so powerful that their feet actually come off the bottom of the bath, if this happens to you, again, do not resist it, but carry on working and practising the arm movement.

Breathing

As soon as you feel that you have mastered the co-ordinated movement of both arms, but not until, it is time to start considering the breathing action of front crawl.

This is performed to the side and you must ascertain to which side you would normally and naturally turn your head. Stand as for the arm practice, but lean a little farther forward and put your face in the water so that your forehead is cutting the surface. Your chin is not pulled into your chest but your head is held on your trunk as naturally as if you were standing upright. Blow out hard through your mouth and then turn your head to the side, trying not to dip your opposite shoulder deep into the water, and take a breath through your mouth, returning your head to the starting position. This is a practice that you may already have carried out in your wash-bowl, but revise it and note to which side you are turning for your in-breath.

Arms and Breathing

Now to combine the arm movements with breathing. This needs care from the beginning because most people find this the hardest part of learning front crawl. It need not be if you are careful and assiduous from the start. Assume that when you turn to breathe you turn to your left. Stand as before with your face in the water and your right hand extended, your left hand by your thigh. Blow out hard then turn to breathe in, at the same time start your arm movement. Perform the whole thing slowly at first. Make your exhalation a forceful one, some authorities describe this as explosive breathing – note that as soon as you have blown out your breath you turn to breath in. The points to stress are:

1. The forceful exhalation.
2. The right arm forward.
3. The turn of the head to the *left* for the inhalation just as the *left* arm starts its 'recovery' movement.

If on the other hand you prefer to turn to the right to breathe in, then your left arm will be forward when you exhale and your right arm will be recovering when you inhale. The side to which you turn is a matter of personal preference at this stage. Later you should practise turning to the other side, as you will find it useful in your later swimming. The combined arm movement with breathing must now be practised carefully and regularly. Do not attempt to speed up the movement until you find it is becoming an automatic movement and do remember to blow out hard before turning your head to breathe in. Practise moving across the width of the bath time and time again, the water should be sufficiently deep now for you to stand with your shoulders just level with the surface. While you are practising there are other points that you should try to remember.

1. When your hand enters do not smack it on the surface of the water but let it glide in with the elbow higher than the hand and the arm relaxed.
2. Do not try to straighten the arm rigidly at the elbow as your hand enters, but keep your shoulders straight to the front.
3. Keep your palm gripping the water when you pull and push. The palm must be kept at right angles to the water to avoid slipping or 'feathering'. If your hand turns to the side you will lose power.

Keep aware of these points, it is easy to remedy faults at this stage, but once they have become habitual you will have great difficulty in ridding your style of faulty technique.

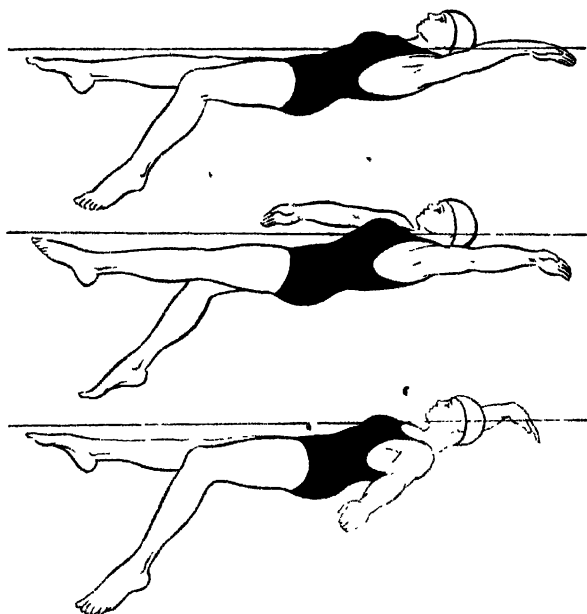
These practices for front crawl arm action should be varied with practices for the arm action of back crawl so that you will be developing the two strokes side by side.

This will not defer progress, but accelerate it, give you greater enjoyment and more variety and less tedium in your visit to the pool.

After you have propelled yourself across the bath once or twice using arm action with the correct breathing technique, stay at the side of the bath and hook your toes lightly under the rail. Assume the back lying floating position then sink the hips slightly and hollow the chest a little. This is the position from which to learn the technique of the back crawl arm action. Raise one arm above your head with the palm turned outward so that the little finger enters the water first and bend your wrist slightly. Keep your shoulders parallel with the bath side and, without stiffening the elbow joint, press the arm vigorously to the side of the body, letting the fingers lead, and the palm of the hand gripping or pressing the water throughout. Then swing the arm back above the head just as before – this is the recovery movement of the arm action and is performed with a relaxed arm.

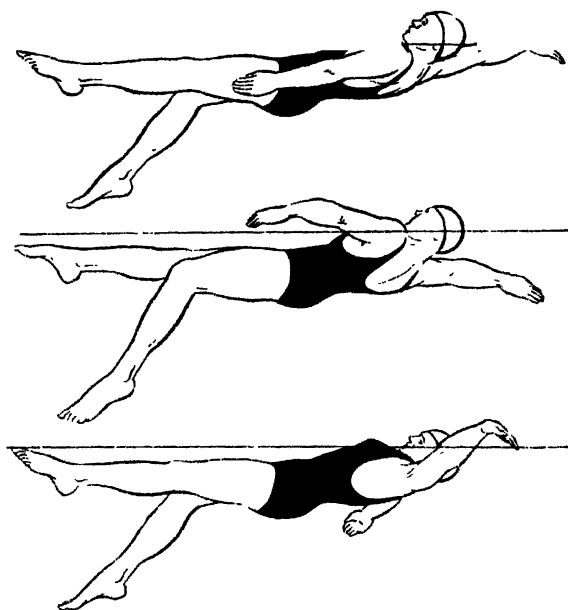
It is a much quicker movement than the pressing propulsive movement. The position of the entry of the hand in relation to the head will depend to a very large extent on whether you are supple or stiff in the shoulder joints. The supple person will find no difficulty in touching his ear with his upper arm *without* turning the shoulder. His hand entry will be nearer his head than the person with stiff shoulders. Even if you are not as mobile in the shoulders as you could wish, concentrate on entering your hand at the nearest point to your head that you find most comfortable, do not try to compensate for your lack of mobility by twisting your shoulders. You will find that regular practice will help to mobilize these stiff joints – another very good reason for learning to swim.

Follow the same routine with the back crawl arm action as you followed with the front crawl. Use one arm at a



13 and 14. Back Crawl – complete stroke

time – you usually keep the other arm at your side – until you have mastered the skill. Then combine the two arms, remembering that the arm which is recovering should be in the water, above the head, before the other arm is withdrawn – thus giving you balance and stability. The vigorous pressing of the arms from the position of entry to the side of the body is the propelling or driving force and this must be performed strongly so that you get the maximum power; it is *not* sufficient to let it slip through the water,



catch the water with your hand and drive the hand through the water.

Breathing in back crawl should not present any real difficulty, but many beginners, because they are in a strange medium, and because they are concentrating so hard on the learning of new physical skills, tend to forget to breathe regularly. In order to avoid this, make a habit of breathing in through the mouth on the recovery of one arm and breathing out through the nose on the recovery of the

opposite arm. This will ensure regularity of breathing and guard against holding the breath and the tension of body muscles and the onset of early fatigue that result from doing so.

Combine the complete arm action with the breathing and the leg action. There is no point in trying to perform the arm action without the leg action. It is much more difficult to do, so do not attempt it at this stage. When you have become a reasonably competent swimmer you can certainly try arm action only for it will help to strengthen you, but until you have mastered the complete stroke always combine the arm action with the leg action.

You have now many varied practices for both front and back crawl. Do not neglect any of them, but revise the easier and earlier ones as a change from some of the more difficult ones. Make sure that at every visit to the baths you make some progress; set yourself a definite target, not necessarily in distance, but in some new skill – this will give you enjoyment and considerable satisfaction.

Propulsion in Crawl

Now that you are learning these two fascinating strokes you ought to know just a little about the way they work. You will have found, after gliding either on the front or on the back, that as soon as you start the correct leg swing your body moves quicker through the water. You have added propulsive power to your glide. In your later practices once you have developed co-ordination and power from your arms, you will notice that the addition of the arm action to your leg action makes you go at a greater speed. For years it was generally accepted that the arm action provided the *major* proportion of the propulsive power and the legs *some* propulsion, but to a much smaller degree than the arms.

Today more and more people are coming to the conclusion that when the stroke is performed properly *all* the propulsion is derived from the arm action in both strokes. You may at first query this. You can easily prove to yourself that the legs working alone, without the arms, do provide motive power and therefore you might assume that this power is still being used to some extent, to send you through the water when you bring in the vigorous and vital arm action. Is this so? You have here two separate motors. One the leg action that may be capable of driving you along at say 5 m.p.h., and the other the arm action that may be capable of driving you at say 9 m.p.h.; for it must be accepted that the arm action is much stronger than that of the legs. If the two motors are working together they cannot possibly exceed the speed of the stronger motor. Thus, when the stroke, either front crawl or back crawl, is being *performed correctly*, the propulsive agent is the arm action and the better your arm action, everything else being equal, the stronger you will swim.

This does not mean, of course, that you can ignore the leg action. This leg swing that you have practised will provide balance and stability – you have only to swim with arm action only to see how you swing from side to side. If the body is well balanced by a leg action of six beats (sometimes eight or even ten) to each complete arm cycle then you will give your arms a better chance of propelling you easily and comfortably through the water. Concentrate then on the arms being the motor to drive you and the legs being the balancer to keep your body on an even keel, thus making it easier for the arms to perform their propulsive function.

6

Starts and Turns for Front and Back Crawl

YOU are now beginning to master the two crawl strokes and you will naturally want to learn the correct start – you have already learned much of the technique in your early water confidence work. You will also want to learn how to turn. The practices below should be tried along with your swimming stroke practices; this will increase your repertoire and your fun.

FRONT CRAWL START

Revise the practices for your first dive outlined in Chapter 3. Concentrate on the push from the side of the bath, the vigorous 'stretch' of the body and the head down position. Make several of these introductory dives followed by a glide; you may return to the side of the bath by practising either a phase of your front crawl or a phase of back crawl, but now that you can swim *never* walk back – this is a waste of your time and it is easier, quicker and more comfortable to swim back.

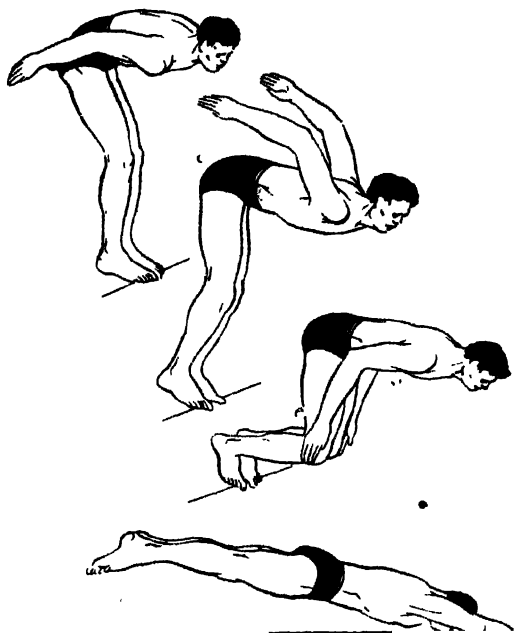
You must now practise a start that will be followed by a swim and, since later you might be attracted to competitive swimming, you ought to learn the accepted start that is used in free style events.

Taking Your Marks

In competitive swimming the starter summons the competitors with a command 'Take your marks'. On this command the swimmers step briskly up to the starting position, have the toes gripping the edge of the pool and the knees slightly bent. The trunk is bent forward so that the shoulders and hips are roughly at the same height. The head is down and the eyes 'spot' a point where the entry is to be made. There is some difference of opinion as to the best position of the arms but for your purpose, at this stage, the best position will be for them to be raised sideways and backwards, the hands being behind the shoulders. This is not a position of strain, but one of alertness. You must adopt the position, and then stand up and move back and once more move smartly into the 'Take your marks' position. If there is a friend to give you the command and then check your position it will be a help, but many practise the movement on their own until they feel that from it they can get the maximum impetus away from the side of the pool and into the water.

The Start

The next signal in competition might be the firing of a gun or a short executive 'Go' from the starter. On this command the arms are swung forwards and upwards, the body drops and there is a vigorous, even explosive, drive from the ankles and knees. It is this drive which will require much practice so that the angle of entry made by the body and the water is about 30° . When the arms are swung forwards and upwards the head drops between them so that the upper arms are touching the ears. The flight through the air demands that 'Stretching' which you practised in your earlier attempts to dive. You may see



15. *Front Crawl – start*

others performing this start with various idiosyncracies, particularly the kicking of the legs up and down when the body is in flight – ignore these – in flight the body must be stretched so that it will pass cleanly through the ‘hole’ made by the hands.

When you have entered the water do not begin your stroke until you feel that your glide is losing impetus. It is

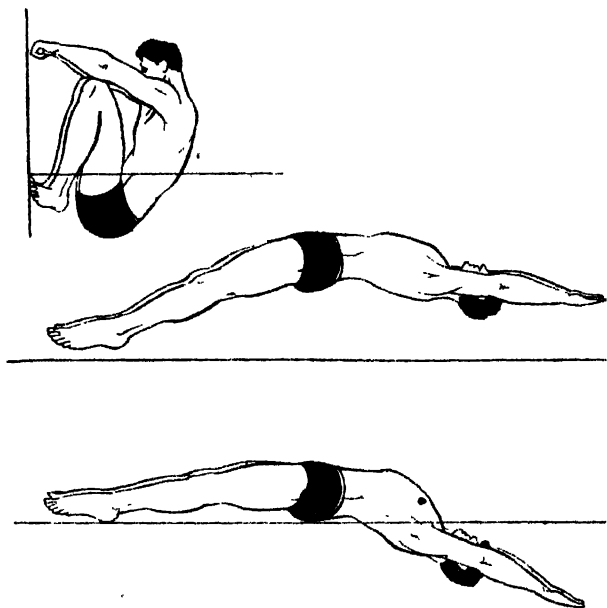
important that you should not start this until the speed of the glide is reducing, because you cannot swim as fast as the speed of the early part of your glide and therefore you should take advantage of this greater speed. The leg swing and a single arm action start together. Do a complete arm cycle without a breath – some competitive swimmers do even more – but one arm cycle without a breath will be sufficient for you and you can then easily develop your normal front crawl action. Do not be tempted to hurry the process. Experience the glide, see that your legs are developing the easy rhythmical swing, take a vigorous pull and push with one arm and then the other and follow then into a normal swimming action.

BACK CRAWL START

You can combine practices for back stroke start with practices for front crawl start. Your vigorous push off, glide and swim will carry you across the pool and when you arrive at the side, hold the rail or trough with both hands and pull your body up so that the soles of the feet are resting on the bath wall and your knees are tucked up against your chest. This is the position for learning the start of back stroke – the only start that takes place with the swimmer in the water.

Place your hands slightly more than shoulder width apart but do not grip the rail, rather hook your hands on to the rail and keep your arms straight. The soles of the feet should be slightly apart and some six inches below the surface of the water. Your eyes must be looking straight in front of you.

Again this is a position of alertness without strain and it is the position you should adopt when the starter gives the command 'Take your marks'. Most of your body is out of the water except the buttocks, the lower part of the back,



16. Back Stroke - start

the feet and the ankles. On the signal 'Go', you should pull on your arms lifting more of your body from the water and then vigorously fling your arms backwards above your head, pressing with your feet and straightening your legs and finally extending your hips. All this is done simultaneously and as your arms go back so does your head so that you are performing a back dive. You must practise this frequently until you find your body clearing the water in a vigorously stretched position. You must take care not to

throw the head too far back, this will cause your entry to be too deep. At first you might find some discomfort by water entering the nostrils, but if you can remember to exhale through the nose during the movement this discomfort will be prevented. Until you feel that your push off and entry are really vigorous do not think about your swim, but practise until you know that you are clearing the water and your hands are entering first in advance of your head.

Once you have accomplished a reasonable entry several times, then carry out the same procedure as followed the front crawl start. Wait until you are losing speed in your glide and then start your leg swing, raise your head slightly to look at your toes and pull and press one arm to the side. As soon as this arm starts its recovery begin working with the opposite arm. Much of the early part of this start you have already learned and it is now a case of improving it by the vigour of your push from the side, obtaining the correct flight of the body, and *then* continuing your swim.

You will now be developing into a reasonably proficient swimmer, and it is at this stage that you should consider learning how to turn correctly, since your ability to turn will be yet another milestone in your progress to becoming the complete swimmer.

Turns for Front Crawl

The law which governs turning in free style swimming is concerned only with touching with the hand, in fact it states that the touch may be made with one or both hands. The beginner in swimming may feel that it is too early for him to concern himself with swimming laws, but since it is to his advantage to learn to turn after doing a width or a length, then it would be unwise if he learned a turn that would contravene the rules of competitive swimming.

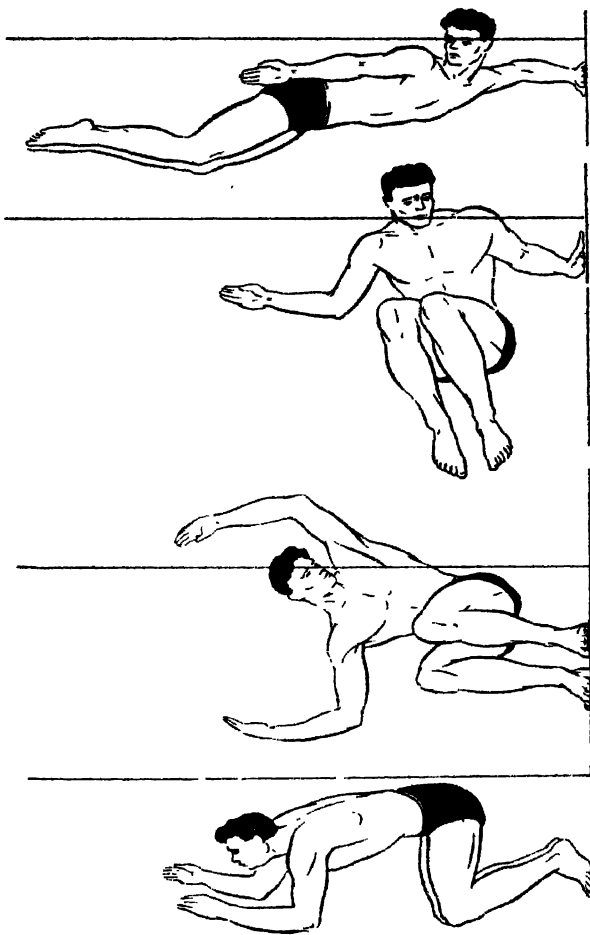
This law means that the widest possible scope is being

given to the front crawl swimmer – all that he must do is to touch with one or both hands when he reaches the side of the bath.

THE HEAD OUT LATERAL TURN or the LATERAL THROW AWAY TURN

This is the turn for the beginner to learn first, as it is relatively simple to execute correctly. It is, in fact, used by long-distance swimmers and it offers the swimmer a good opportunity to take a good inhalation since, as you will see from its title, the head comes out of the water completely. In order to learn this turn, go back to one of your early water confidence exercises – mushroom floating. Perform this facing the bathside and within arm's length of it.

1. Your first position will be holding your knees with both hands. When you have obtained this quite comfortably, raise the left arm and touch the bath side. Now raise your head clear of the water and turn to your right by bringing your right shoulder round. This will tend to bring your feet and legs near to the bath side. Practise until you can turn round with your head out of the water and your feet against the side of the bath, keeping the knees bent.
2. Stand farther away from the side, push off from the bottom and glide so that you touch the bath side with both hands.
3. Push off and glide to touch the bath side with the left hand, lifting the head out of the water immediately after the touch.
4. As in 3, but as you touch with your left hand, bend the knees and bring them under the chest with the right hand near or on the right knee.



17. Head Out Lateral Turn

5. From the position in 4, lift your head, take a deep breath and turn to look in the direction from which you came – your feet should now be touching the wall as well as your left hand.
6. Swing your left arm vigorously forward towards your head, straightening your right arm and dropping your head once more into the water.
7. Drive hard with your feet and straighten your legs.

You have now returned to the glide position which you started in practice 3.

Do not expect the turn to be learned quickly. If you find that one of the practices is not being executed well return to the previous one and revise it. Carry out the movements relatively slowly at first, speeding them up when you become more proficient.

Practise the same movement to the left, remembering that this time the hand to touch the bath will be the right.

Once you have mastered the turns in *both* directions you may be anxious to accelerate the rate at which you turn, but make sure that you are confident that the turn is being carried out correctly first. You should now swim up to the bath side and without hesitation or loss of speed touch the wall with the leading hand, palm flat and fingers pointing upwards. As soon as the hand touches, bend the knees and turn the head, lifting it clear of the water. Use your free hand now to help with the turn, and then fling your other arm over the head quite vigorously. Once your head and arms are in the glide position push very vigorously with your feet. You are now in a position similar to the one you obtained after your front crawl start, and in order to begin your swim, you follow the same procedure by starting the leg swing, and when the head breaks the surface the arm action commences. Because of the opportunity of a deep

inhalation when your head was lifted, there is no need to take a breath with the first arm cycle.

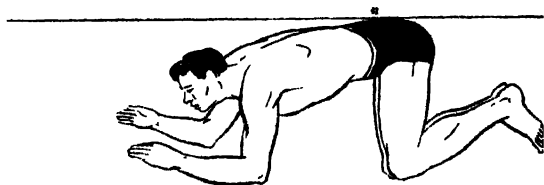
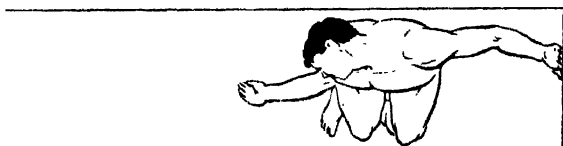
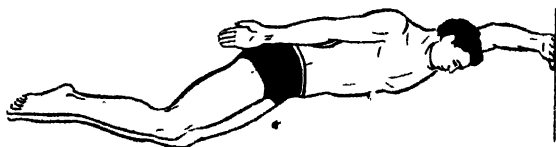
THE SPIN OR PIVOT TURN

Sprinters and long distance swimmers both use this turn as it is faster when done correctly, because no part of the body comes out of the water. The mechanics of this turn are very similar to that of the turn already described, the essential differences being that in the spin turn the head remains under the surface of the water and the touching arm is not thrown out of the water on the push away from the side, but is recovered under water.

Progressive practices (presupposing the Lateral Throw Away Turn is already mastered):

1. Swim front crawl to the side judging your distance so that when the left arm is just recovered you are about one foot from the side.
2. Pull and press with your right arm *very* vigorously to take your left arm to the wall. Put the left palm on the wall six inches below the surface with fingers pointing to the right and left arm bent.
3. Repeat 1 and 2 until you are able to judge the distance accurately, but *do not* recover the right arm and keep your head down.
4. Repeat with knees halling up under the chest and head and shoulders turning vigorously to the right. Use your left arm to help you – use it as a spoon.
5. Repeat 4 again and again until you feel that you are pivoting to the right – your buttocks being the point of the pivot.

6. Practise this 'pivot' until you can feel your feet on the bath wall.
7. Once you are confident that your feet will touch the wall after your pivot, attempt to straighten your legs, bringing both arms forward beyond the head.
8. Swim in and complete your turn, and after a vigorous push with your feet, glide under water and when the glide ceases, stand up.



18. Spin or Pivot Turn

9. Repeat, but glide to the surface and stand up.
10. Swim in, complete your spin turn and follow your glide with front crawl leg kick.
11. Swim in, spin, turn, glide, leg kick followed by arm action without an inhalation, followed by normal front crawl stroke.

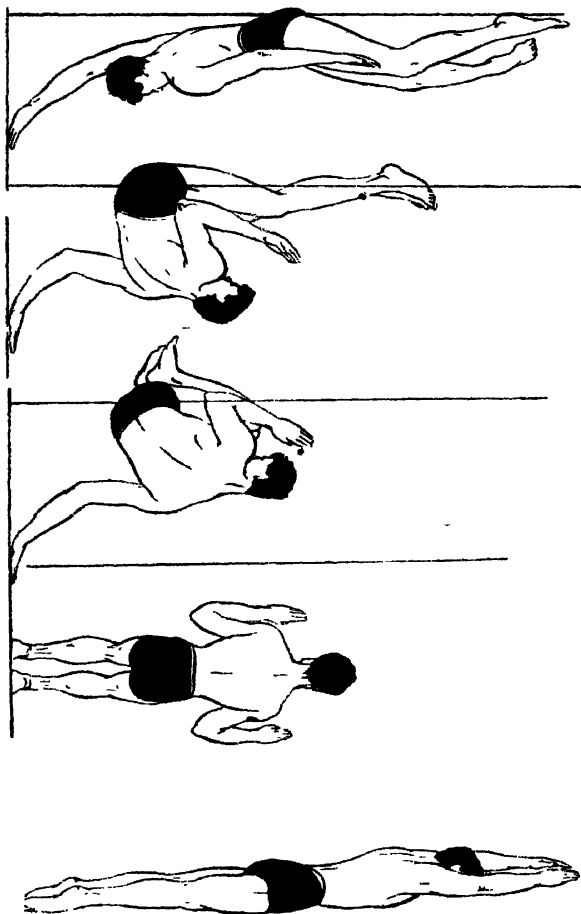
It is better to learn one of these two turns first. Most beginners will find the spin turn more difficult than the throw away turn, but it is essential that you learn to turn both to the left and to the right whichever turn you decide to use.

THE SOMERSAULT OR FLIP TURN

If performed correctly this is a faster turn than the throw away or the spin turn, but it allows little or no margin for error. It is essentially a speed turn and requires considerable practice. You may decide not to learn this turn until you have made much more progress with your swimming, but when you decide to tackle it, you will find that, by the very nature of its technique, the flip turn offers a challenge which, if taken up, will cause considerable satisfaction.

Practices for the Somersault Turn:

1. Swim up to bath wall and gauge your touch.
2. Repeat, but touch below the surface of the water with fingers pointing downwards and head dropping to chest.
3. Repeat, but bring head and shoulders towards thighs as though performing a forward roll or head over heels.

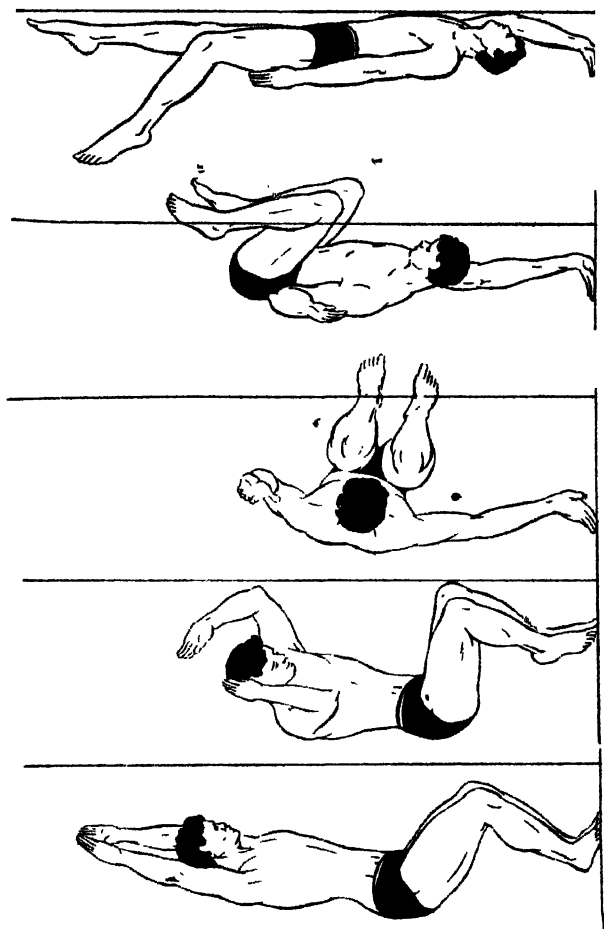


19. Somersault or Flip Turn

4. Touch as in 2 and roll over as in 3, but bend your knees so that your heels are close to your buttocks – continue the roll feeling for the bath side. Repeat this forward roll trying to keep the touching hand on the bath wall. This will demand a quicker roll.
5. After the tuck up and roll have been perfected, you will be surfacing on your back and you have now to practise a half turn or half twist to enable you to surface face downwards. During your tuck up and roll – when the feet are out of the water – start to twist your body by turning your head and your left shoulder (if your right hand is the touching hand) vigorously to the left. This, after much practice, will turn you face downwards.
6. When face downwards, straighten your legs by pushing off from the side. Remember to use your free hand to help you in the twisting movement and do not push off into your glide until the half twist or turn has been completed. If you push away before the turn you will be off balance for your glide.
7. From your glide, start your leg drive followed by a strenuous single arm pull and push to bring you to the surface.

BACK CRAWL TURNS

When you start to consider how you will turn correctly after finishing a width or a length of back crawl, you will have to remember that there are strict rules which govern these turns and any turn that will infringe these rules should not be contemplated. The law states that 'any competitor leaving his normal position on his back before his foremost hand has touched the end of the course for the purpose of turning (or finishing) should be disqualified'.



20. *Tumble Turn*

Thus, the correct method of turning in back crawl assumes that the turn is made with the swimmer lying on his back, he cannot twist or roll into any position that will necessitate his forsaking the back lying position.

THE TUMBLE TURN

Progressive Practices :

1. Move away from the side of the pool in a back glide, bring your knees up to your chest and with one hand sculling, turn completely round so that you have performed a circle. Use the opposite hand and turn the other way, keeping your body well tucked.
2. Carry out the same movement, holding the non-sculling hand above the head, scull hard and attempt only a half turn. This is, in effect, the movement that you will perform from the bath side.
3. Stand a few yards from the bath side, push off from the bottom of the bath into a back glide with one arm by your side and the other above your head. When the raised hand touches the wall, bend your knees into the tucked position and using your free hand, scull to turn round.
4. As in 3, but stand further away and after your glide use your legs as in back crawl so that you approach the bath side at greater speed. Perform the turn, pushing away with the feet from the bath side. The feet should be parallel and slightly apart.
5. Using your legs as in 4, but when your hand touches the side, at a depth of twelve inches, fingers pointing downwards, throw your head back, blowing out through the nostrils, tuck and turn pressing the feet vigorously against the side.

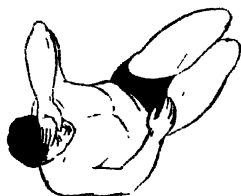
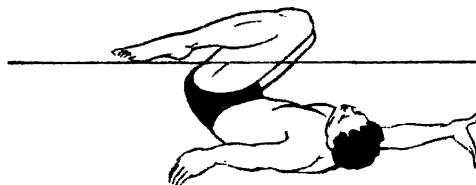
6. Practise 5 repeatedly using first one hand and then the other above the head so that you are learning to turn in both directions.
7. Start from the opposite side with a back crawl start, swim the width using legs *and* arms. Touch with one arm, turn, push away *and* glide.
8. As for 7, but after the glide use your legs and then a single arm action as the shoulders reach the surface, followed by the complete stroke. Try to assess the touch by looking for some guide on the roof of the bath. Do not turn your head to look for the side.

THE HALF SOMERSAULT TURN

As with the more advanced turn in front crawl -- so with the half somersault turn for back crawl -- learn it only when your swimming has developed sufficiently. This is one of the more advanced techniques that you will want to learn later, it is essentially a fast turn and will require much practice before you perfect it.

Progressive Practices :

1. Assume back gliding position near bath side with *one* hand holding rail or scum trough. Pull knees up to chest with lower limbs out of water to touch bath side with *both* feet. The head will be well down in the water -- release the hand and push away into a front glide.
2. Repeat, but as feet come up, slide hand down the side of the bath, fingers pointing downwards.



21. Half Somersault Turn

3. Stand a few yards away from the bath side, push into a back glide with one arm above the head. Use the back crawl leg action to develop speed and perform the somersault or back roll, finishing in a front glide position. Note that the touching hand must bend and the head comes very near the bath side. The feet and lower legs must be whipped over quickly.
4. Practice 3 until the somersault has become proficient. It may be advisable to wear a nose clip to prevent water passing up the nostrils and causing an unpleasant sensation.
5. Once you are confident that your somersault is efficient and is performed quickly, practise a half twist or a roll. This is carried out in the direction of the free or non-touching hand - when the feet are touching the bath side, otherwise you might well contravene the laws governing the back crawl turn.
6. Practise 5 so that you have developed a really proficient back glide from your push off, but keep the touching arm by your side and let the free arm lead the glide; by so doing you will not have to worry about complicated arm movements and it is highly probable that this single arm glide after the turn makes the turn itself faster than if you glide with both arms.

The Orthodox Breast Stroke

BREAST stroke is governed by quite stringent laws which make for little elasticity in stroke production. When learning the stroke it is essential that you appreciate the definition of breast stroke according to A.S.A. laws and in the practices outlined for learning the stroke, emphasis will be placed on the salient features of the laws.

BODY POSITION

The law states that the body must be kept perfectly on the breast and both shoulders in line with the surface of the water. Thus, the basic body position is that which you practised in your early swimming lessons when you pushed from the side and developed an easy relaxed *glide*. Practise this again, trying to ensure that your body is lying almost



22. Orthodox Breast Stroke - body position

horizontally on the water, your face should be submerged with the bridge of the nose or the forehead breaking the surface so that the head is not forced backwards nor is your chin pressed on to your chest. It is essential for your head

position to be a relaxed one. If there is tenseness here it will result in a loss of form throughout. The arms should be extended easily above the head, the palms facing the bottom of the bath and the thumbs and first fingers touching. The legs are relaxed but the ankles are extended to streamline the feet so that the toes are pointing backwards.

This basic position must be practised constantly until you can perform it effortlessly and even after certain propulsive movements have been learned, the wise swimmer will return again and again to the practice and revision of this relaxed glide position. It is a part – an essential part – of the breast stroke and is more important to the beginner than any other single part of the stroke.

THE LEG ACTION

The A.S.A. law states that the feet shall be drawn up together, the knees bent and open. The movement shall be continued with a rounded and outward sweep of the feet, bringing the legs together – up and down movements of the legs in the vertical plane are prohibited.

Here again there is a clear definition of what is involved and anything that contravenes that definition is wrong. Once the glide position has been mastered, and for the water-confident learner this should not take long, attention must be paid to learning the leg action. It is unwise from the outset, however, to consider that the leg action can be divorced from the stroke as a whole and while you are practising the limb tracks performed by the legs, you must bear in mind constantly the timing and co-ordination of the whole stroke.

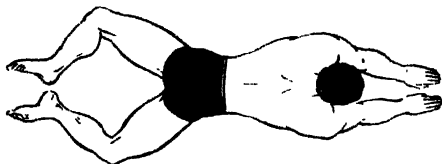
The leg action in breast stroke is not a natural swing as in front crawl and back crawl. Time must be spent on establishing the correct movement, so that you will derive the maximum amount of propulsion from the leg drive and

so that you will not develop a leg action that would fall outside the definition stated above.

Practices for Breast Stroke Leg Action:

1. Stand shoulder deep in water away from the bath side and raise one leg by bending the knee outward (NOT FORWARDS – the natural way). Raise the knee and thigh as high as you can and allow the lower part of the leg to hang relaxed. From this position flex your ankle joint so that the toes are pointing upwards. Lower the leg and repeat, making sure that the knee is raised to the side and then flex your ankle to point the toes upwards as soon as the knee reaches its highest point.
2. Repeat 1 with opposite leg. Then perform the movement alternately left and right until it becomes quite an easy movement.
3. Raise the leg as in 1 and 2 and as soon as it reaches its highest point with the toes pointing upwards, straighten the knee vigorously and drive the leg towards the standing leg.

Note.—This is the propelling part of the leg action, when the two legs are working simultaneously, and it is therefore of paramount importance that the toes should point upwards, so that the sole of the foot will press against the water and force you forwards.



23. *Leg recovery*

4. Repeat the whole movement – recovery, the bending of the knee outwards, and propulsion, the straightening of the knee and the swing to the opposite leg – until you can perform it fluently with either leg.

5. Practise the following sequence:

1. Breathe out through the nose.
2. Breathe in through the mouth.
3. Recover with one leg.
4. Propel with one leg.

6. Push off and glide, breathe out (face under water), breathe in (head held up), lower face and perform leg action with *both* legs together, glide and stand up.

7. Repeat 6, but after the second glide carry out the sequence again, then glide and stand up.

It is important here to establish the sequence of breathing: –out – in – and then the leg kick and at the same time to remember that, now that you are in the glide position, the ankles must be extended after your leg drive is finished, so that you are gliding through the water with your toes pointing away from the direction of your glide. You were not able to practise this when you made the leg drive from a standing position, but practise it now.

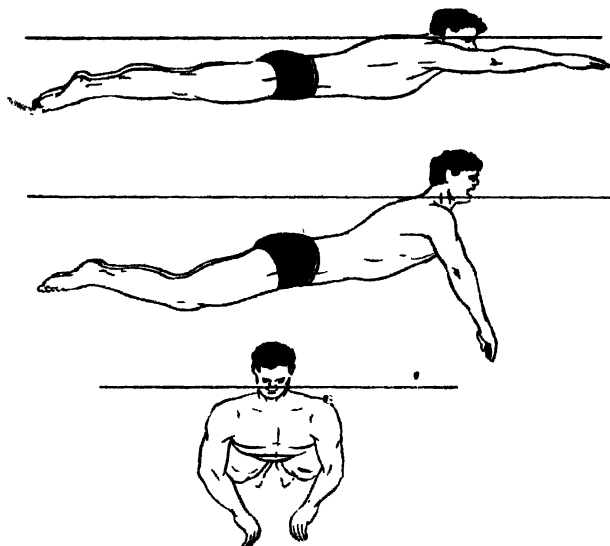
8. Practise widths using the same sequence, aiming to glide relaxed as far as possible after each leg drive, in other words make an attempt to appreciate how much propulsion you are deriving from each leg drive.
9. You may, if you wish, use a float held in your hands, forward of your head, and practise lengths of the sequence.

THE ARM ACTION AND BREATHING

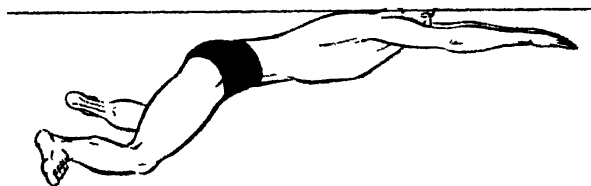
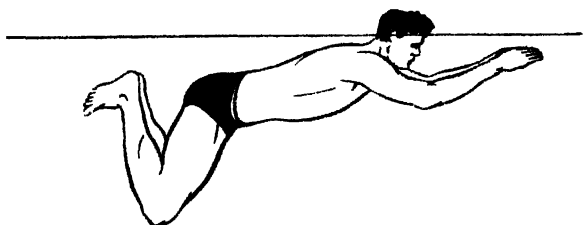
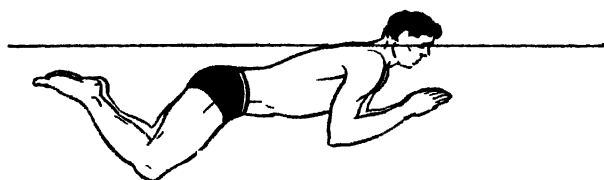
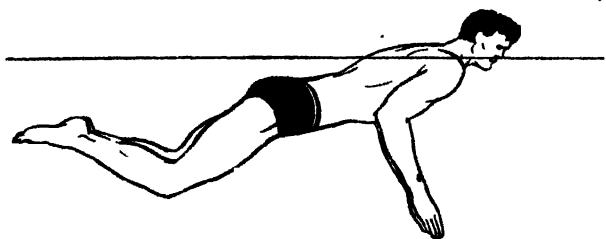
The A.S.A. law governing Breast Stroke dictates the pattern of the arm movement: – ‘Both hands must be moved forward from the breast, on, or under, the surface of the water and brought backward simultaneously.’ The recovery movement, that part of the stroke that places the limbs in a position to start the propelling phase, must be made forwards from the breast and *on or under* the water. Thus, the recovery of the arms is performed under the water not, as in your two previous strokes, crawl and back crawl, out of the water. The propelling part of the arm action must be performed with both hands *simultaneously*, again in direct contrast to the crawl and back crawl where the arms propel the body alternatively.

Before practising the arm movement in the water, some attention should be given to the track the two limbs produce, since there are many misconceptions. The arms are practically ready to start their propelling phase when they are held relaxed above the head some four inches below the surface, and wrists slightly bent in the front glide position. From this position the arms are moved to a position almost vertically below the shoulders. In order to perform this movement, press downwards so that your forearms and hands point downwards. The hands will have performed a narrow elliptical shape since the movement is downwards and outwards, but they should not move too far to the side – rarely more than the width of the shoulders.

Once they have reached a point beneath the shoulders, the elbows bend, squeezing the upper arms into the chest, bringing the finger tips together. The hands will continue to press on the water until they reach the chest, when the wrists are straightened and the arms pushed forward to their starting position.



24 and 25. Orthodox Breast Stroke – complete cycle.



Practices for Arm Action :

1. Stand in relatively shallow water so that when you lean forward your shoulders are under water. The face should be submerged and, of course, the eyes must be closed.
 (a) Blow out through the nose.
 (b) Press down and back with the hands until they are vertically below the shoulders at the same time raising your head only sufficiently for you to breathe in through the mouth.
 (c) Repeat (a) and (b) until you feel confident that you are really pressing with your hands.
 (d) Bring the hands to the chest continuing to press with them until the first fingers are touching, then reach forward to the starting position.
2. Push off and glide, blow out through the nose, press the arms backwards as in (b), breathe in through the mouth -- lower the head, recover with the arms, and glide.

These movements are not natural movements and require considerable practice and in order that you should be able to concentrate on correct performance it is urged that you do not attempt to combine the arm and leg movements until satisfactory performance with the arms has been attained.

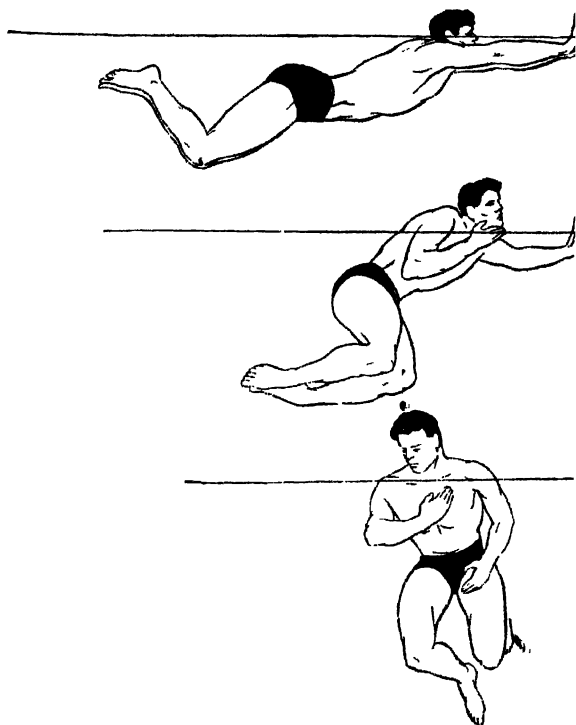
CO-ORDINATION

You are now able to perform the leg action, the arm action and you know when to breathe in and when to exhale in breast stroke. Your next task is to fit these skills together to make the complete stroke and it will help you if you try to link the movements numerically.

1. Blow out through the nose.
2. Press with the hands, raise the head and breathe in through the mouth.
3. Bend the elbows and bring the hands to the chest. *and at the same time* raise the knees sideways.
4. Return the arms to the starting position *slowly* and *at the same time* press with the feet and bring the legs together.
5. Glide.

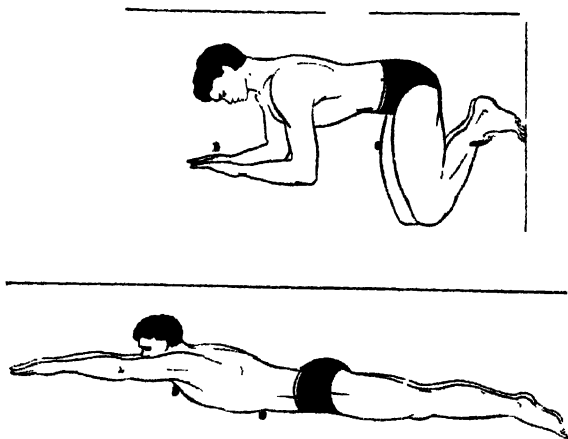
At first carry out the whole cycle once only, counting deliberately, and then stand up. Repeat this constantly until you know that you have developed this five-count rhythm. Take care on count 'four' that you do not hurry the return of the arms. The legs have a wide kick and closing movement to perform while the arms have simply to move in an easy extended position. The tendency at first is to push the arms forwards vigorously hollowing the chest. Since they have only a short distance to travel in comparison with the closing action of the legs, the arm recovery should not be hurried, but should be timed to finish when the legs come together. The arm recovery is under water and is being performed against the direction of the swim; it is, therefore, necessary not to hurry it or you will cause greater retardation, you will swim slower and you will find your swimming more tiring.

Try swimming a width correctly, not speedily but concentrating on co-ordination. You will find that with practice you are able to cross the normal sized bath in four or even three strokes. Once you have covered widths, attempt a length and proceed from there to fifty yards and then a hundred yards. This type of practice will prove most beneficial, the stroke is not a tiring one when well



26 and 27. Breast Stroke Turn

performed and you will soon find that to swim even a quarter of a mile is well within your compass. Remember all the time you are swimming breast stroke that there are two distinct propelling phases. The arms assist propulsion when the hands press backwards on count *two* and



the legs give a greater propulsive effect when the soles of the feet press against the water and the legs close on count *four*. It is during these two parts of the stroke that maximum effort is required, the other movements in breast stroke should be deliberately relaxed so that jerkiness and stiffness are avoided and the stroke is performed with the smooth efficiency of a machine.

THE BREAST STROKE TURN

Once you begin to swim lengths or for that matter even widths, you will be anxious to learn how to perform a correct turn and again we must look at the laws that govern the competitive stroke before starting to practise the turn. This states: - 'When touching at the turn the touch shall be made with both hands simultaneously, with the shoulders in a horizontal position.'

The Approach

It is easier in breast stroke to estimate the distance from the wall, and it is advisable to try to swim in finishing with a powerful leg drive to send you into the wall reasonably quickly. The hands, some six inches apart, are placed on the wall (not the rail or trough) with the fingers pointing upwards and above water level.

The Tuck and Turn

As soon as the hands touch, the elbows bend to bring the face near the wall (speed on the approach is required here) and with the bend of the elbows the knees are tucked into the body and the hips turned to one side. The shoulders are high and the head should be lifted out of the water and a breath taken (later you may try the sprint turn, where the head is kept under water). If the turn is to the right the right arm is taken away from the wall and with a sculling movement helps to twist the body round in the water.

The Push Off

The feet drive hard to extend the legs, the head is lowered and both hands are advanced in front of the head, and the body glides forward below the surface of the water, the glide being perfectly streamlined with toes extended. While the body is below the surface, one complete stroke may be executed before surfacing.

As with other turns this turn too should be practised both to the right and to the left. Do not be afraid, once you have mastered the technique of the turn, to increase the speed of your approach by a most vigorous leg drive, since the speed of the approach to the wall will help the actual turn itself.

The Butterfly Stroke

YOU are now a competent swimmer capable of swimming front crawl, back crawl and breast stroke. During your frequent visits to the baths, while you have been practising the various skills required by these strokes, you will have found that some movements pay a larger dividend in relation to your progress through the water than others. The arm action of crawl stroke, if performed correctly, is more powerful than the arm action of back crawl stroke, simply because the arms in crawl work at a mechanical advantage when compared with the arm action of back crawl. If you wish to pull yourself by a rope towards a certain object it is easier if you face the object, get hold of the rope and pull, whereas if you sat down with your back to the object and reached backwards for the rope and propelled yourself towards the object from that position, your progress would be much slower. Similarly the arm action of breast stroke compared with that of front crawl is relatively weak for two main reasons:

1 The pulling and pressing of the hands towards the chest is done backwards and outwards, so that the hands move in an arc from the position where the hands are touching in front of the head, to a position where they are underneath the shoulders and shoulder-width apart. This again is not the best way to pull, if speed of progress is your sole objective; how much stronger is the movement performed by the arms in front crawl stroke.

2 The recovery of the arm action in breast stroke is

done under water and against the direction of the swim. This is a movement which causes retardation and great care has to be taken in its execution in order to reduce this retardation, although by the very nature of the movement, retardation cannot be eliminated.

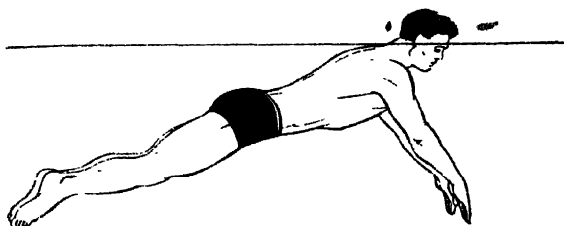
Swimming coaches and competitive swimmers realizing this mechanical disadvantage in orthodox breast stroke, as a *speed* stroke, evolved a completely different arm action in order to gain the powerful pull that the arms develop in crawl stroke and in order to minimize the retardation caused by the arm recovery. This evolution brought about a new stroke which, because of its double arm action, has been called the 'butterfly' stroke, although the swimmer moving up the bath performing a powerful and vigorous 'butterfly' stroke bears little resemblance to the butterfly's grace and poetry of motion. 'The swimmer sacrifices the aesthetic for sheer power; he is in a hurry, the butterfly is not.

The production of a different type of arm action led to much controversy in swimming circles. In 1952 the organization responsible for governing the sport in international competition ruled that the butterfly stroke could not be performed in breast stroke competitive events, and the laws which governed breast stroke, outlined in the previous chapter, were stringently enforced. Butterfly stroke thus became a new stroke for competitive purposes and it will be interesting to see how this stroke will ultimately develop since swimming coaches, like motor engineers, are constantly on the look out for any change that will lead to an increase in performance.

BODY POSITION IN BUTTERFLY STROKE

The position that the body will obtain when swimming butterfly stroke will vary considerably with physique and with shoulder mobility. The best position of course would

be that of crawl stroke, or orthodox breast stroke, where the body lies nearly parallel to the water surface. When the stroke is performed, because of the powerful double arm action and its consequent recovery out of the water, the



28. Butterfly Stroke - body position

body becomes inclined at an angle to the horizontal position. If the swimmer has very supple shoulder joints then this angle is reduced. Here is an example of altering one part of the stroke and its consequent effect on the swimmer's style. In order to reduce the retardation caused by an underwater recovery of the arms, the arms are recovered out of water, but this in itself causes another retarding effect in that the swimmer's poise is now inclined at an angle. These effects and counter effects are the problems that face the student of swimming, each new solution offering a new challenge.

ARM ACTION

It has been said that the propelling movement of the arm action in butterfly stroke can be compared with that of crawl stroke in that the arms travel, in a pull and press, from the shoulder to the hip. There is, of course, one major difference - in crawl stroke, the arm action is alternate - in butterfly, it is simultaneous, and although the arms follow

a similar pattern of movement, constant propulsion cannot be obtained by the arms, since once the propelling part of the arm action is finished there must be a pause while both arms are recovered to start propelling again. In crawl stroke there is *no* pause, one or other of the arms is providing some propulsion throughout the stroke.

The arms at the start of the action are held at shoulder width in advance of the head. This is the fundamental position which the arms will have obtained after the glide, and although many butterfly swimmers and coaches discourage this glide, it is easier for the novice to use it, and he can dispense with it later if he so wishes. In this extended and relaxed position the hands are turned downwards. At catch, when the hands as it were, 'get hold of the water', the wrists turn the hands slightly outwards and the arms, with the elbows moving somewhat sideways, begin their pull downwards and backwards. Throughout this movement there is a noticeable but not a great bend in the elbows and, when the arms reach a point under the shoulders, the pull becomes a push or press which is continued until the hands reach the hips. The arms then rotate vigorously on the shoulders, are thrown forwards, keeping near the surface of the water, and are returned to the starting, or glide, position as quickly as possible.

Practices for Butterfly Arm Action:

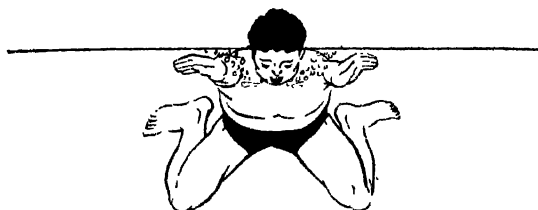
1. Any movement on land which will help to loosen the shoulder joints, e.g.:
 - (a) Arm circling (swing your arms loosely, both backwards and forwards, making a large circle with your hands).
 - (b) Arm swinging forwards and forwards upwards (swing both arms to shoulder height, return to the sides, then swing them above the head – repeat).

- (c) Standing with feet astride, trunk leaning forward and arms above your head. Head and trunk pressing downwards.
2. Stand in relatively shallow water with your trunk leaning well forward, face on the surface of the water and arms held in advance of the head and shoulder width apart. Practise the arm pull and press, remembering to turn the hands slightly outwards. Do not worry about the recovery at this stage but concentrate on the correct arm movement following through to the hips.
 3. Repeat the pull and push and *slowly* recover the arms taking an in-breath as the mouth breaks the surface.
 4. Blow out through the nose, pull and press with the arms, swing the arms forwards (now at a quicker rate) to the starting position, breathing in through the mouth when it is clear of the water.
 5. Push off and glide with arms extended above the head and shoulder-width apart. Blow out through the nose, perform one complete arm pull and push with the recovery and an in-breath, – glide, – stand up. Repeat this regularly, letting the legs trail and taking note of the distance travelled with each arm cycle.
 6. Repeat 4, but after the glide perform another complete arm cycle with breathing and glide.
 7. Swim widths using arm action and breathing only.

The Butterfly Leg Action

The type of leg action that the butterfly breast stroke swimmer will perform will depend on his physique and his physical attributes. The tendency however is for the orthodox breast stroke leg kick to be narrowed in order that the leg movement can be timed to fit in with the very quick arm recovery. If the leg drive is developed from a wide angle it takes longer to perform although it will develop

more power, but in the butterfly stroke the major propelling force is that provided by the arms and the propulsion gained from the legs plays a subsidiary role – in direct contrast to the propelling agents of orthodox breast stroke where the legs are the dominant factor. In order to perform the leg kick of the butterfly stroke the legs are slightly apart before recovery commences, and the heels are then drawn up towards the buttocks and the knees bend outwards. The soles



29. *Butterfly Stroke – leg recovery*

of the feet, providing that there is sufficient mobility in the ankle joints, are turned so that they are almost parallel with the water, toes pointing away from the body. This is the recovery phase of the leg action and the drive, or propelling phase, follows immediately. This propulsion is derived from a downward and outward thrust of the legs, the soles of the feet pressing against the water and the legs coming together. The whole movement must be done as quickly as possible.

Co-ordination of Arms and Legs

The narrow leg kick has to be timed to coincide with the arm recovery. When the arms are in flight *after* they have been taken from the water, the legs start their recovery and the whole leg action is completed by the time the hands are ready to pull. This timing will ensure a degree of propulsion to be provided when the arms are not working as a

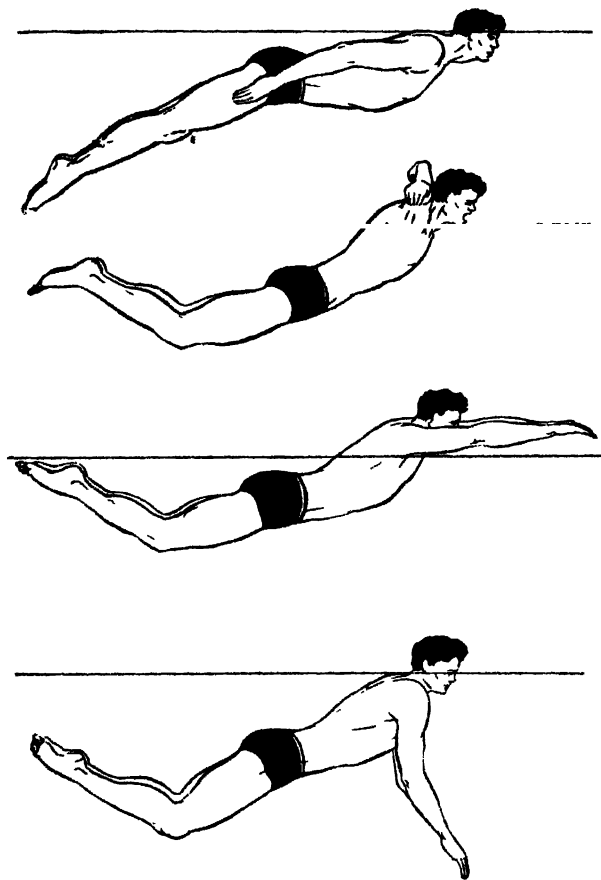
propelling agent but, of course, the power of the leg drive is by no means as great as that of the arms and it is because of this that swimming coaches have for years sought a more powerful leg action that could be fitted to the arm action.

The Dolphin Leg Action

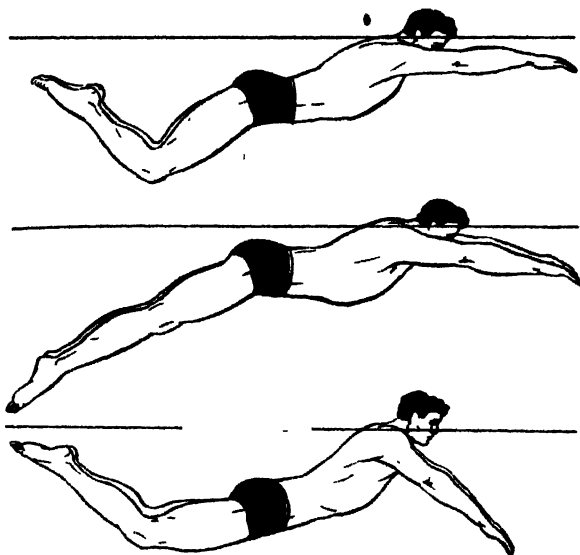
The fish-tail leg action that is used with the butterfly arm action is not new. A description of the stroke appeared in an American publication in 1935, but of recent years it has developed in popularity and one can now see it performed at almost every visit to the baths. Although at first it was stated to be too vigorous and strenuous a stroke to be attempted by the young, it is interesting to see how many young swimmers enjoy performing the stroke.

The out-of-water recovery of the arm action of butterfly stroke necessitated a leg action that would not only provide more power, but would also eliminate much of the retardation caused by the recovery phase of the butterfly leg kick. What better than to substitute a double leg action that to all intents and purposes is similar to the leg action of front crawl, save for the very important fact that in front crawl the action is an alternating one whereas the dolphin leg action is a simultaneous one in order to conform with the rules which govern butterfly stroke: 'All movements of the legs and feet must be executed in a simultaneous manner'. The leg action of the front crawl has therefore been adapted to fit in with this rule and has proved to be productive of higher speeds than the alternating leg action of the crawl. One might ask why this fish-tail kick is not used in front crawl, but swimmers who have tried to use a simultaneous leg action with an alternating arm action have found that it is extremely difficult to co-ordinate the two.

The dolphin leg kick is initiated in the lower part of the spine and the hips, and two complete beats are performed



30 and 31. Dolphin Stroke – complete cycle



during one arm cycle. As the legs move upwards there is a pronounced bending of the knees and on the downward drive of the legs the knees straighten, the downwards beat of the legs causing the hips to rise. The feet are kept together throughout the stroke although there is a tendency for the lower part of the legs to be apart. The whole movement is one of flexibility and the description 'fishtail' conveys the movement admirably. When first learning the dolphin kick it is strongly advised that you should isolate the arms by placing the hands on a float or training board and practise the kick keeping the head reasonably low. It will prove difficult at first and you will certainly find it tiring but your previous training in front crawl leg action

will stand you in good stead. When the movement begins to develop you will soon appreciate that this double leg action drives you through the water very quickly. Some swimmers, especially women, find that it helps to turn over on the back and practise the dolphin leg action upside down, the rhythm of the movement can often be established this way and then, when the movement is practised face downwards again, progress seems to be more rapid.

Co-ordination of Arms and Legs

The arm action for the dolphin stroke is the same as that already described for the butterfly stroke. Co-ordination of the two movements calls for care and much practice.

The fact that there are normally two leg beats to each arm cycle helps considerably with co-ordination.

When the arms are extended in front of the body in the glide position, the legs are at the top of their up beat with the soles of the feet near the surface of the water and the knees bent. The arms start to catch the water and begin their pull as the legs are driven downwards and the hips rise. The legs then sweep upwards and the arms continue with their propelling action. By the time the legs have reached their second downward beat the arms have finished propelling, they have reached the hips and are about to be withdrawn for recovery. During the recovery of the arms, the vigorous and rapid sweep out of water, the legs perform their second upward beat so that by the time the arms are in the glide position the soles of the feet are near the surface of the water.

It is, at first, difficult for the beginner to perfect the synchronization of legs and arms and much will depend on the mobility of his shoulders, the mobility of his hips and the strength of his arms and shoulder muscles. If the leg movement has been practised conscientiously without the use of

the arms then the best way to establish a rhythm is to concentrate on fitting in the two leg beat actions with the complete arm cycle. With practice, providing there is sufficient mobility and sufficient strength, you should be able to develop the ideal timing. But the butterfly dolphin stroke like every other stroke has to be 'tailored' to suit the individual and it might well be that the ideal pattern is not suitable for you. It is interesting to note that some of the best dolphin swimmers, Tumpek of Hungary is a notable example, developed a three-beat leg rhythm. With it Tumpek created five consecutive world's records.

Breathing for Dolphin Stroke

Opinions vary as to which is the better system of respiration in this stroke and ultimately it must be a matter for individual preference, or, in the case of the competitive swimmer, a matter for the appraisal of the coach. The more orthodox method is to keep the head forwards and, as the arms are pushing, the head is raised and when the lips break the surface an in-breath is taken. When the arms are midway in their recovery movement – the outstretched 'wings' of the butterfly – the head drops and exhalation starts. The other method is to adapt the turning of the head as used in front crawl stroke to the dolphin stroke. The powerful pull and push of the double arm movement creates a bow wave and the head is turned sideways into the trough of this wave for the in-breath whilst the arms are commencing their recovery movement. Swimmers using this method of breathing are well advised to practise turning the head to the left and to the right. As the stroke develops, and you become more proficient, it will be less arduous; you may then try to follow the system used by most competitive swimmers of breathing once to every two arm cycles.

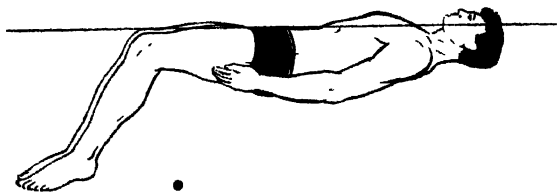
The English Back Stroke

FEW modern books on swimming make any mention of the back stroke that is advocated for life saving. It is not a competitive stroke, nor is it a fast stroke, and were it not for the requirements of the Royal Life Saving Society it would probably have suffered the same fate as the side stroke or the old trudgen stroke, both of which disappeared after the evolution of front crawl stroke. If you are learning to swim for speed alone there would be no point in learning this stroke, but there are factors, other than speed, that must influence you. Swimming as an enjoyable recreation is probably your chief aim and you will find that you will derive much pleasure from learning and practising the back stroke. Of greater importance is the application to life saving. You are now a competent swimmer, you should therefore be prepared to go to the assistance of anyone who finds himself in difficulties in the water.

Leg Action

If you assume the back glide position, raising your head sufficiently to look at your toes without any tension in the back and neck muscles, you are in the fundamental body position for this stroke. You have already practised this both in your early confidence training and in your practices for back crawl. Revise it and use the back crawl start for your push away from the side. Alternatively, you may lie on your back in the water and use a float, placed under the

back of your head, held with the hands. From this position allow the legs to bend at the knees, so that the lower limbs form right angles with the thighs, and as the legs bend the knees are parted and spread some twenty to twenty-four inches apart. The heels are kept together and, owing to the parting of the knees, the toes point downwards and outwards. It is most important to see that the knees are not



32. *English Back Stroke - leg recovery*

raised, they *must* remain below the surface of the water. Swing the feet with a vigorous outward and upward circular motion towards the surface of the water and bring the legs sharply together in line with the body and with the ankles stretched. This vigorous swing and closure of the legs is the propelling part of the leg stroke and you must make every effort to press against the water with the insides of the feet.

Once the legs have come together you should glide for a few seconds before attempting the next leg drive. After the first few practices, providing you do not lift your knees, you will find that six or seven leg drives will take you twenty-five to thirty yards. It is essential to relax and to glide in order to feel the driving force of each leg kick. If you lift your knees you will be committing a very common fault and one which greatly reduces the speed and ease of the stroke.

It is necessary, while you are practising the leg action, to concentrate on a good body position, relaxed and with the head sufficiently raised so that you can just see your toes when the legs come together. This places the shoulders in such a position that they ride over the water when the propelling drive is made. If your body is relaxed it will glide almost horizontally causing the minimum resistance to the water and at the same time obtaining the maximum propulsion from each leg sweep.

Speed is not the essential factor behind this stroke, but if you are to consider it as a possible means of saving life then you must practise it until you can travel at least 400 yards without feeling fatigue. An accurately performed leg drive followed by a relaxed glide will help to offset fatigue and, with each practice, greater confidence in your ability to maintain this stroke over ever increasing distances will be developed.

Before progressing further with life saving techniques you might well contemplate learning the whole of the English back stroke as yet another stroke in your repertoire. It is no longer a popular stroke, but those who do it, enjoy it, as it is less vigorous than many of the racing strokes and when performed correctly is graceful and seemingly effortless.

Arm Action

To learn the arm action, swim to the bath side and curl your toes under the rail as you did when learning arm action for back crawl. Allow the arms to hang loosely from the shoulder at the side of the body with hands easily cupped and the finger tips gently touching the sides of the thighs. Move the hands gently in front of the body, keeping the palms downwards until the thumbs and first fingers are touching. Raise the arms and in so doing rotate the

wrists so that the hands are back to back, swing the arms upwards above the head. This is the recovery movement of the arm action and in English Back Stroke there is a pause, a glide, before the next part of the arm action follows. In order to develop the correct rhythm of the stroke it will help if you count 3 before the arms move sideways and downwards so that the hands return to the thighs. This sweep of the arms provides propulsion and during this part of the stroke the elbows should be kept perfectly straight and the wrists bent so that the finger tips lead all the way. Learn to breathe while continuing this practice for the arms; as the arms recover by their forwards and backwards swing over the head you should breathe in through the mouth, then as you are counting 3 for glide, you should hold your breath and then exhale through the nose as your arms sweep to the side.

You should not need to practise long at the bath side and as soon as you have mastered the three stages of the arm action, push off from the wall, keeping your arms to the side and then practise the whole of the arm movement with breathing, without the use of the legs. While you are practising the arm action, the points that you should try to remember are:

1. The slightly raised head with eyes watching the toes.
2. The straight elbow during the propelling pull.
3. The Glide.
4. The Breathing.
5. The relaxation of the trunk.

CO-ORDINATION OF ARMS AND LEGS

You are now sufficiently *au fait* with both legs and arms and ready to proceed to the complete stroke which will not take you long to perfect. Start by gliding on your back

with arms extended easily beyond the head, hands touching and back to back. Then from this starting position perform the complete stroke in this sequence:

1. Pull the hands sideways and downwards to the outside of the thighs and exhale through the nose.
2. Glide.
3. Allow the feet to sink for the leg drive, complete the leg kick and *at the same time* recover the arms to the starting position inhaling through the mouth.
4. Glide as in the starting position.

When you have developed this co-ordination, practise the complete stroke regularly until you can swim quite a number of lengths effortlessly. It will help if you count the number of complete strokes that you make during the swimming of a length and then aim to reduce this number.

ADAPTATION OF BACKSTROKE FOR LIFE SAVING

When the back stroke is used for saving life the arm action is not used. The arms serve to support or to hold the subject being rescued and therefore in practising a stroke that will be of value for rescue work the arm action should be omitted. The leg action has to be adapted, since in most cases the legs of the subject tend to sink thus making it impossible for you to bring your own legs smartly together. To compensate for this and in order to provide constant propulsion the feet are moved in a *continuous* rotary action, outwards, upwards, inwards and downwards, pressing on the water as far as possible with the insides of the feet, calves and thighs ensuring that there is plenty of thigh work and that the vigorous part of the movement is the outwards,

upwards and inwards one, whereas the downwards movement is as gentle and relaxed as possible. The whole series of movements must be continuous and you should eliminate jerkiness. Note that now there is no glide or resting period and constant practice must be carried out in order to develop a powerful, yet easy stroke. During practice isolate the arms, they can either be folded in front of the chest or kept to the sides or even placed above the head. Do not use them to help you in the stroke. Once again, constant practice is essential and until you are capable of swimming at least 100 yards without using your arms you should not attempt any method of rescue.

The Royal Life Saving Society, which administers a whole series of qualifications for Life Saving, enumerates a number of different methods of rescue and in order to enhance your prowess as a swimmer you should try one or two of these methods. You would be well advised later to take one of the awards of the R.L.S.S. and in your preparation for this you will learn not only methods of rescue but also of release – how to free yourself from the clutches of a drowning person in order to effect a rescue.

Methods of Rescue

One method of rescue that you should try with a partner is to tow the partner holding him by the head while you use the life saving back stroke. You must grasp your partner's head with both hands, the palms covering the ears and your fingers resting on his forehead. Rest your partner's head high on your chest and keep your arms bent with the elbows tucked well into your side. In this way your partner, lying on his back, will be kept close to you and towing him in this manner should not be difficult. Alternatively, you may hold your partner's upper arms, pulling his back on to your chest, and tow him in this position.

Unigrip

†

Neither of these rescues permit the use of the arms, but the Unigrip method, where the person to be rescued is held by only one of the rescuer's arms, does permit the opposite arm to help the stroke. Hold your partner under the jaw firmly but not tightly with your left hand, keep your elbow well in and then swim using the leg kick, and scull with the right hand.

Tired Swimmer

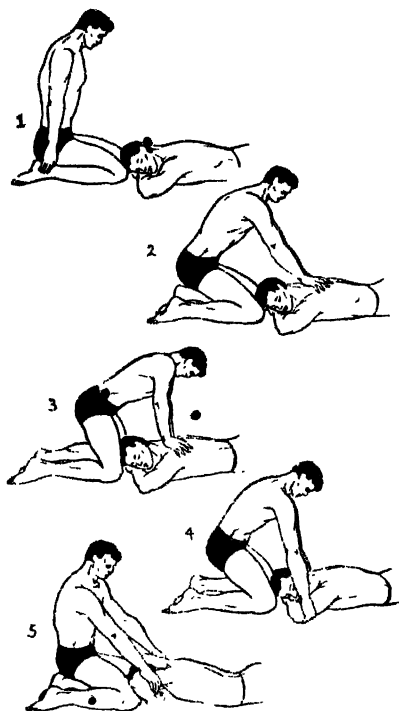
One further method of rescue that you will enjoy practising is that in which you rescue a tired swimmer by allowing the swimmer to float on his back while you face him, and keeping his hands on or near your shoulders, swim breast stroke. These methods of rescue will further increase your swimming repertoire.

THE HOLGER NIELSEN METHOD OF ARTIFICIAL RESPIRATION

It is so important for all of us to be able to assist with artificial respiration that, although this book is primarily concerned with learning to swim, some mention must be made of how you will be able to offer assistance and perhaps save a human life.

Method

The immediate step to be taken is to remove the subject quickly and effectively from the source of danger whether it be water, fumes or electricity. It is of the utmost importance that no time whatsoever should be wasted, but you must remain calm yourself. Place the subject on firm ground so that he is facing downwards,



33. *The Holger Nielsen method of Artificial Respiration*

his head turned to one side and his cheek resting on his hands – his elbows should be bent so that his fingers come underneath his cheek. You should now kneel at the subject's head so that your knees are close to his fore-arms.

2. Keeping your arms straight, put your hands on the flat of the subject's back near the top of his shoulder blades, with your thumbs almost touching and fingers well spread. Your body weight will be over your heels, since you must be sitting back whilst your hands take up this position.
3. Rock forward slowly with your seat coming away from your heels, *still keeping the arms straight*; apply pressure evenly on the subject's back. Your body weight moves from your heels and your arms are almost vertical over the subject's back as the pressure is exerted.
4. Rock backwards towards your heels, releasing the pressure, and at the same time slide your hands to grip the subject's arms above the elbows and gently draw his arms up towards you.
5. Start the back pressure again and repeat the whole cycle, maintaining a rhythm so that the whole series of movements is completed in six seconds. It will therefore help if you count:
1 - 2 (back pressure) 3 (change position of arms)
4 - 5 (pull on subject's arms) 6 (change position of arms).

This rhythm will enable you to perform ten cycles per minute, which is the recommended number if your subject is an adult. For children the whole cycle is performed in four seconds - the pressure applied is lighter - and you should aim to perform fifteen cycles per minute.

Points to remember

1. Act quickly and calmly.
2. Loosen any clothing, e.g. collar, that might restrict breathing.

Plain Diving

DIVING is not closely related to swimming. The diver performs from the ground or diving board and in the air and his body is not supported by the water during his performance. Gymnastics and diving have a much closer affinity than swimming and diving, but, since both swimmer and diver require a pool in order to practise and compete, it is obvious that during your visits to the swimming bath you ought, and will almost certainly wish, to learn to dive. Much of the early water-confidence work that you carried out while learning to swim will prove of infinite value to you when you start diving. The starts or racing dives that you have mastered for front crawl and breast stroke will help you too, but do not confuse the racing dive with the plain dive. The former is a method of entering the water at the greatest possible speed in order to project your body through the air and into the water at a suitable body angle from which to start your swim. There is little time lost from the word 'Go', or the starter's gun, until you are gliding through the water ready to make your first swimming stroke. The racing dive or start does not come into the category of a pure dive, it is not performed as a competitive dive, it is merely a means to an end, while the dive proper is an end in itself. Whereas in the racing entry the body travels at a very acute angle to the horizontal, in the dive proper the entry should be made as near vertical as possible. In the dive there is no call for speed; control is the maxim and the good diver shows considerable body discipline.

The competitive dive is marked on style and standard of performance and the judging starts from the moment the initial stance is taken up to the moment when the feet disappear under the water. What happens under the water is of no concern to the judges – only to the diver.

Although all that the judge will look for in assessing a dive takes place out of the water, it must not be assumed that all the training should be carried out from the bath side or the diving boards. It is essential in the early stages to put in much practice in and under the water. At the same time, although swimming and diving are different and separate activities, your visits to the baths will be of even greater interest if you combine some of the work that has been suggested to help you with your swimming with some of the diving practices. You will then develop your ability to dive as you improve your swimming, and further enjoyment will ensue with each visit to the pool.

LEARNING THE PLAIN HEADER

EARLY CONFIDENCE WORK IN THE WATER

Much of the confidence training you carried out for swimming will not need revising, but any practice that involves submerging with the hands and head leading will help to establish the correct attitude of mind towards diving. From the outset all movements should be controlled so that a good body position becomes habitual.

Suggested Practices:

1. Hand stand with legs together and straight, and ankles fully stretched.
2. Swim to bottom of pool using only arms, keeping legs and ankles as in 1.
3. Push off and glide.

4. Push off and glide, drop the head and make a vigorous sideways sweep with the arms, bend the hips and try to touch the floor of the bath. Then by pointing the fingers upwards and raising the head, glide to the surface. This is a surface dive and should be practised frequently. Keep the legs together and stretch the ankles throughout.
5. Take up the position described under 'stance' with knees well bent and arms midway-upwards. Jump to a hand stand by springing from both feet. Try to throw the hips well up to bring the seat over the head.

The above stages should be carried out in relatively shallow water where you can stand comfortably. They are all of paramount importance to the would-be diver. All the time you are practising them, do your utmost to maintain a good body position and, of course, keep your eyes open under water.

From the bathside into 5 feet of water

1. Sit on the side of the pool. Place your feet on the trough or rail and have them slightly apart. Keep your arms in midway-upwards position and push hard with your feet to throw your hips upwards. Look down at the bottom of the bath throughout and as you leave the bathside try hard to stretch your legs.
2. Kneel on the side of the bath adopting the same position with the arms. Push hard with the feet particularly with the rear foot, look down at the water and try to stretch the legs and keep them together.
3. Stand with knees well bent, look down at the water and push really hard with both feet attempting to perform the same movement as you did when handstanding in the water. Lean slightly forward as you take off and continue looking down at the water.

4. As above but with the knees slightly less bent. Adopt the 'take-off' position and push very hard with the feet, throwing the hips up. You are now performing the Plain Header from the side of the bath.

Each of the above practices should be carried out frequently until 'you are satisfied' that the movement is being well performed and that you are confident in performing it. Only then should you move on to the next more difficult stage. Now that you have started diving do not be tempted to proceed to a more difficult dive or to a higher board until your dive has become proficient. Do not be afraid to ask other divers for frank criticism of your performance. They can see your dive, you cannot. Above all do not be deterred by a few mistakes; aim to dive well and to enjoy diving.

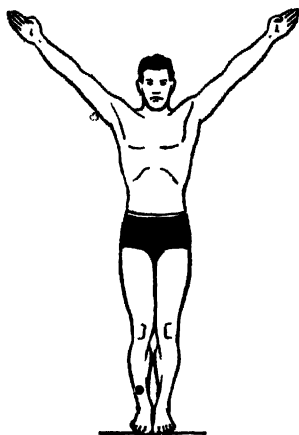
THE PLAIN HEADER

This dive has replaced the English header as the basic dive since it is much easier to learn and can be performed from the bath side into 6 feet of water with safety. It is best described in its four phases:—stance, take-off, flight and entry.

A. *THE STANCE*

This is the position that you adopt in preparation for the dive—the ready position. It is one of control and your posture is of paramount importance. For the Plain Header you should stand erect with your feet together, toes gripping the edge of the bath or diving board. You should look straight ahead; it helps if you fix your eyes on an object in front of and level with you, and at all costs avoid looking down. Your back should be straight, shoulders level and abdomen pulled in. Your arms should be raised midway-upwards, with palms facing forward, and thumbs

and index fingers touching. The arms and trunk make a Y position.



34. *The Stance*

The main points to remember in taking up your stance are :

1. Keep your head up—look in front of you and *not* at the water.
2. Assume the erect position—not one of rigid attention like the guardsman on parade—but a position of alertness and readiness, a position from which you can concentrate on the next phase of the dive.

B. THE TAKE-OFF

This is a series of movements that you perform on the board to give impetus and propel your body into the air. There is no hurry and you must move from the stance to the take-off in your own time. From the well balanced position of the stance the weight of your body is transferred to the



balls of your feet. Your body should bend forwards slightly and you should bend your knees, trying to keep your hips vertically over your feet.

In order to get spring from the board or bathside you must now straighten your legs very vigorously trying to drive the hips upwards at the same time leaning forwards. Your arms must be kept in line with your trunk.

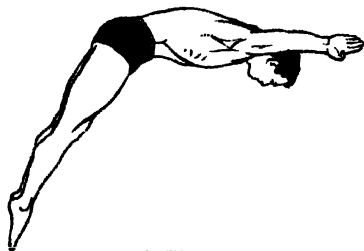
Points to remember in take-off:

1. Driving the hips upwards.
2. Stretching the knees and ankles.
3. Looking forwards at the water.

35. The Take-off

C. THE FLIGHT

The flight is the passage of the body through the air and it is essentially a graceful and smooth movement. There is little movement of the limbs during the flight of the plain header. Your hips are bent slightly in the first stage of the flight and are straightened before you actually enter the water. At the same time your arms are brought together just as you enter the water. You should try to squeeze your ears with the upper part of your arms.



36. The Flight

Points to remember in the flight :

1. Look down at the water.
2. Do not hollow the back.
3. Continue to stretch legs and keep them together.

D. THE ENTRY

This is the final phase of the dive and starts as soon as the fingers touch the water continuing until the feet have disappeared under the water. For the entry your trunk should be almost vertical and you should try to keep your body straight and stretched. Whether you achieve a vertical position will, to a large extent, depend on the height of your take-off. Your fingers make a hole through which the rest of your body should follow, the top of your head, your shoulders, trunk and finally your legs, which should be straight and together, your ankles too must be stretched so that your toes are pointed.

Points to remember in the entry :

1. Keep the body stretched.
2. Aim to enter with body in a straight line.
3. Attempt to obtain a vertical entry.

*37. The Entry*

PROGRESSIVE STAGES FOR LEARNING THE ENGLISH HEADER

These practices follow immediately after those you have learned for diving from the bathside and should not be attempted until you have become reasonably competent.

1. *Stance*

Adopt the stance described above. Do not waste much time at the baths learning this, but do it at home before a mirror. Check the position of the head, arms and feet, see that your shoulders are straight and that your chest is not hollowed. Look at yourself from both the head-on view and the side view. After correcting yourself move away from the mirror, then walk up to it again and take up the stance, make further corrections and repeat the process until you are satisfied that you can adopt a correct stance every time without having to alter your body position.

2. *Take Off*

1. Again some practice can be carried out at home so that when you visit the swimming pool no 'water time' is wasted. Stand with your back to a wall and your heels some six inches away from it. Assume the stance and then swing the arms downwards until your hands touch the wall. Return to the arms-forward position and repeat but follow through with your arms and press with the feet so that you leave the floor. Make sure that your arms are swung above your head and that they do not touch the wall. Aim to get height by pressing hard with the feet and stretching the body as you leave the floor.

2. At the baths. Do not be tempted to try the full dive described above from the bathside. You will find it easier to do it from a height of three or four feet above the surface

of the water. (The reason for this is that the body has to turn in the flight and this additional height gives you more time in which to make the turn.) Adopt your stance and swing the arms downwards and then quickly forwards and upwards at the same time pressing with your feet and stretching your knees. Do not be disappointed if things go somewhat awry, there is much to think of, and you will probably forget something. Note the point of entry, it will probably be too far out making your actual entry not sufficiently near to the vertical. Repeat the dive trying to correct any fault that you made and attempting to enter a little nearer the board.

In all your subsequent attempts keep the word 'stretch' to the forefront; this will help you overcome many of the faults that might occur. Do not be afraid to ask other divers for frank criticism of your performance; they can see your dive, you cannot. Above all, do not let a few cracks deter you, and aim for the bottom of the pool.

Now that you have started diving do not be tempted to proceed to a higher board until you have become really proficient from the lower one. Your aim should be to dive well and, until your performance from the lower board is regularly good, you would be unwise to proceed to a greater height.

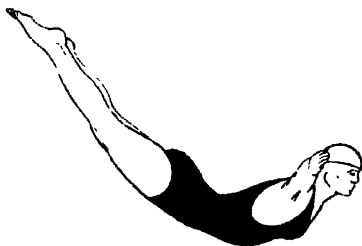
The dive that has been described above is known as The English Header. Many diving coaches prefer to teach the Swallow Dive instead of this and there is no reason at all why you should not try it. Many consider it an easier dive to learn and it has considerable advantages if you wish to learn more advanced techniques later.

THE SWALLOW DIVE

The Swallow Dive has exactly the same Stance and Take Off and, indeed, Entry as the English Header. In diving

parlance it is known as the Forward Dive Straight, the Header is not used in diving competition. The difference between the Header and the Swallow is in the flight. The only movement in the flight of the Header is the dropping of the head, but in the Swallow the arms also move. Coaches who prefer to teach the Header first say that this movement of the arms demands greater co-ordination and therefore it is better left until afterwards, those coaches, however, who prefer their beginners to learn the Swallow Dive first, insist that the arm movement affords better balance in the flight and therefore gives the diver more control.

The essential difference in the two dives occurs when the arms are swung forwards and upwards. In the Header there they stay, but in the Swallow, once the arms reach the upwards position they continue downwards and sideways until they are level with the shoulders, with the elbows straight and the hands slightly in rear of the shoulders. The head is held up and the chest is expanded, this leads to a slight hollowing of the back, but this should not be



38. *The Swallow Dive*

exaggerated. When the body turns the arms are swung upwards above the head which is forced downwards so that the entry follows the same pattern as that for the header.

The Swallow Dive is well worth practising and it is safe to assume that once you have mastered it you will not return to the Header, but will want to progress further with other dives. It is at this stage that you will find membership of a swimming club with a strong diving section to be of real value, for not only will you be with others who are keen to progress, but you will almost certainly have the opportunity of being coached by an experienced instructor.

Dangers

Diving has its fascination, it also has its dangers, but these are small provided that common sense is used. Before you dive make sure that there is no one in the water below you or that some swimmer is not proceeding rapidly to the place where you will make your entry. At the same time, always ascertain that there is a sufficient depth of water. If you practise regularly at the same pool you know the depth of water, but when you dive away from your own environment make sure that you test the depth before you make your dive – the best way of testing is to jump in feet first. Remember also that rafts and diving boards at holiday resorts are not always fixed by knowledgeable people and take care too when diving in tidal waters. The difference in depth caused by the tide is often considerable and it is always wise to check the depth first.

The chart below gives you suggested depths of water for different heights. If you use this as a guide you will be quite safe.

DEPTH OF WATER

the depth required for diving from different heights

<i>Height of Board</i>	<i>Minimum Depth of water</i>	<i>International Minimum Depth for Competition</i>
		<i>Metres</i>
1 metre 1 yard (approx.)	6' 6" - 7' 6"	3
3 metres 9 feet (approx.)	8' 6"	3.5
5 metres 14 - 15 feet	8' 6"	3.8
7½ metres 22 feet	12'	4.1
10 metres 30 feet	14'	4.5

The Swimming Club

PRACTICALLY every town has its own swimming club which is affiliated through the County Association to the Amateur Swimming Association, the body which governs swimming in England and Wales. The local club is the centre of swimming activity in the area and will provide considerable advantages to its members. Most clubs welcome the efficient swimmer, and many make provision for the learner; all have as their keynote a spirit of friendliness that is inculcated through the desire of all members to participate in something they enjoy.

Competition

One of the great advantages of swimming is that you enjoy it without belonging to a team; it is something that you can do in your lunch hour, on your holiday, whenever and wherever it suits you, providing that water is available. You need not therefore belong to a club; many swimmers have never been members of swimming clubs and still enjoy their recreation. If you wish to take part in competitive events however you must belong to a recognized club, and one that is affiliated through its County Association to the governing body of the sport. This body rules that swimmers over the age of 16, who wish to take part in a competitive swimming event, *must* be attached to an affiliated club. The club will always advertise that its events are being run under A.S.A. laws and this means that

such competitions are governed by the same rules, no matter where they are held. Thus, by becoming a member of a club you are helping to participate in the regulation of swimming competition throughout the country. At the same time, because of the Amateur Swimming Association's affiliation to the *Fédération Internationale Natation Amateur* – the governing body of international swimming – the laws of swimming competition are the same in international events. The young swimmer who joins a club is brought up knowing that the laws that apply to his own local swimming event will be the same if ever he reaches international competition.

Regular Practice

Swimming clubs generally have some arrangement with the local baths committee for the regular use of the baths for club members only. This is, of course, a tremendous asset. You, as a club member, will be assured of regular swimming throughout the year. This advantage is not to be scorned, since there is a very great shortage of swimming facilities in this country, particularly in the winter months when so many of our baths are unfortunately closed or converted into dance halls, or wrestling arenas. It is not always possible to gain admission to a public bath – your club, however, will have a regular booking perhaps once a week or sometimes more frequently.

This booking will be set aside for the use of club members and your regular swim will be safeguarded.

Coaching

Most swimming clubs now have qualified coaches who attend the swimming sessions to guide and advise club members. They are always willing to observe you swimming and give you advice on how to improve and how to

rid yourself of a fault that might be occurring in your stroke. The advice of such a coach should never be spurned. Swimming is a very individual business and although it is perfectly easy for you to teach yourself to swim, it is not always possible for you to adapt a stroke to suit your physique. A good coach, after watching you swim, will be able to assist you in this and it is surprising how much easier your stroke becomes if an expert has given you a little guidance.

Social Side

Perhaps the most important reason for the majority of people taking part in sport is the social aspect. The opportunity of meeting and mixing with other people is, to many, of greater value even than indulging in an activity or in improving one's personal performance. In addition to galas, most clubs maintain a strong social side, with dances and social evenings catering for the younger section and the adult groups. One well-known London club even has a special session for parents of its members and the non-swimming parents are offered an opportunity to learn to swim.

UNDER-WATER SWIMMING

This sport is becoming increasingly popular and should you wish to take part in it you should join a branch of the British Sub-Aqua Club. These branches exist in all parts of the country and as with the swimming club, so with sub-aqua, there are enormous advantages of membership. Indeed, it would be very difficult for you to advance very far with under-water swimming without belonging to some accredited organization where you could receive instruction in diving, where the correct equipment is provided and

where the safety regulations are insisted upon implicitly. The initial training will ensure that the swimmer becomes accustomed to being under water, that he uses the correct stroke (breast stroke or a modified version of it) while swimming underneath the surface and that he gets used to the less complicated pieces of apparatus, such as the snorkel, goggles and flippers. Lectures too are given on diving, and on under-water exploration so that during the winter months excellent training for more advanced work is carried out.

Expeditions to various suitable waters are arranged during the warmer weather and it is on these that the swimmer becomes acquainted with skin diving and with the use of the aqualung. Competent and qualified diving instructors accompany the expeditions so that the beginner is assured of being well looked after from the very start of his career as an under-water swimmer.

Members of sub-aqua clubs become quite fanatical about their sport. There is no doubt that they are introducing the swimmer to a wonderful new world of interest to the photographer, the biologist, the geologist and the archaeologist.

Sub-Aqua Tests of Proficiency

Before you are allowed to attempt skin diving, the following swimming tests have to be passed successfully.

1. Swim 200 yards free style (preferably breast stroke).
2. Swim at least fifty yards wearing a ten-pound weighted belt.
3. Swim fifteen yards under water.
4. Surface dive to pick up an object from the deep end of the bath.
5. Float (if possible motionlessly) for one minute.

Advice to Swimming Teachers

FEW teachers will admit to finding the teaching of swimming an easy task; it is, of all physical activities, perhaps the most difficult to present to a class. The reasons for this are easy to find. Many schools can only attend the pool in the summer term, and perhaps the total number of visits that a class may achieve in one year is ten. The length of time that the beginner can spend in the water is limited and thus, it is quite conceivable that in many schools children receive only 'four or five hours' instruction in a school year. This makes the task of the teacher an enormous one, for he or she is faced with introducing beginners to a strange medium, in itself a problem, and endeavouring to turn out some thirty swimmers at the end of ten short lessons. The size of the class, too, militates against good instruction. An ideal number for one teacher is between twelve and twenty, but in the majority of schools where the swimming is taught, often miles away from the school premises, how can this be arranged? Even with small classes and regular visits to the baths throughout the year swimming is not an easy subject. The acoustics in most baths are deplorable, and the teacher finds it hard to combat the noise that is inevitable with an active class. Again, very many pools are quite unsuitable as teaching baths. Sometimes they are too large, often too deep for good instruction in the early stages, and the problems of control are accentuated. Rarely, too, does the teacher have a class of the same ability. In his group are be-

ginners, novices and quite competent swimmers. There is little wonder, therefore, that the successful teacher must be an enthusiast, a person devoted to his task, for only enthusiasm and dedication can help him to overcome these many disadvantages.

What to Teach

Despite the difficulties the task is not insuperable and there are means of solving most of the problems. The first decision that the teacher of swimming has to make is what he is to teach. Is he to try to give every member of his class some sort of instruction, is he merely to concentrate on the beginner, is he to select potential members of a swimming team and coach them, or is he to aim at a raising of the general standard of swimming in every class that he takes?

Since it is unlikely, because of the demands of the school timetable, that the teacher will be given a class of the same ability, the enthusiast for swimming (and there is little chance of success without enthusiasm) will decide to aim for a general raising of the standard of performance in every child. This is the only fair way of dealing with the problem; it is wrong for the beginners' need to be ignored so that one or two members of the class may win inter-school honours; it is equally wrong that the demands of the poor performers should prevent the better swimmers from improving. It is possible for improvement to be made by all, and this should be the teacher's aim irrespective of the shortness of time, the poor condition of the bath or the seemingly absurd size of the class.

Control

If the teacher is to achieve this aim, he must establish control from the very outset. The children must realize on

their first visit to the bath that there is to be no nonsense. No matter what is practised elsewhere in the educational curriculum there must be discipline at the swimming pool. The expression 'let the child find out for itself' can spell danger at the baths and it is impossible to see how any lesson can be productive unless the members of the class know clearly what they should be doing. Discipline is essential. Certain rules must be made and must be observed. Any child breaking them should be made to dress and forego the rest of the lesson. The best method of maintaining control is for purposeful activity to be the keynote of every lesson; each child should have plenty of activities to practise, and these of course must be within the child's capabilities. If there is variety, there is no reason why everyone in the class should not be occupied, and, more important, enjoyably occupied, throughout the whole of the lesson. Let it then be established, as a first premise for the successful swimming teacher, that *every* lesson should be full of activity for *every* child and that each activity should be both purposeful and enjoyable. In this way control will be established and the lessons will not deteriorate into rowdy displays of exhibitionism by the more advanced, and periods of shivering, misery and immobility for the beginners.

Preparation

It follows that if each lesson is to cater for every member of the class the teacher must give careful thought and much time to the preparation of his work. The needs of each child, or group of children of the same ability, must be studied, and activities planned to come within the compass of their capabilities.

It is insufficient to plan for one lesson. The teacher's preparation should embrace a whole year's work which is adjusted in detail as lesson follows lesson. Not only must

the teacher be able to assess the abilities of the class, he must know his swimming, and his preparation must include reading and study so that he keeps up to date with his work. During the last few years there have been considerable changes, and regular study of books and periodicals with attendance at occasional refresher courses will be of inestimable value. At the same time, the wise instructor should learn to discriminate, to make use of what is acceptable to him, and to jettison what he considers to be faulty in the light of his experience.

Observation

Every teacher must be able to detect and correct faults. In order to detect mistakes he must learn to observe his young swimmers moving about in and under the water. It is not always easy to see exactly what movements are being performed, the very fact that the teacher is standing well above his pupils is often a hindrance and the distortion of limb movements caused by refraction often leads to an incorrect appraisal of what is wrong. It is better for the teacher who suspects a fault in a limb movement that is being performed under water to look at the swimmer from several angles. It is not sufficient to look only at a side-ways view, but the teacher should change his position, or that of his class, so that he can observe from the side, then head on, and then from the rear. When making up his mind about a faulty movement the teacher *must* be able to find the cause of it. It is possible that a pronounced shoulder roll, when turning to breath in front crawl will make the legs appear to perform a lateral swing. There is little point in correcting the leg action here, although many do it. The corrective practices must be concentrated on the turn for the in-breath. This ability to detect the fault will only come by experience, experience of watching the be-

ginner and of watching the good performer. The teacher should never be hasty in his assessment and should always bear in mind that each swimming stroke has to be adapted to the individual and what might appear to be faulty technique for one child might not be a fault at all in another.

Avoiding Wasting Time

The time that any class has at the baths is limited, and every teacher must avoid wasting it. Many lessons do not last for more than thirty minutes and often this includes undressing, drying and dressing. It is therefore vitally important that no time should be lost and certainly none wasted.

The class should be taught *before* their visit to the pool that they must undress and dress in a quiet and orderly way. That they should leave their clothes tidily in the cubicles or changing rooms is an essential part of their social training and saves much time when they return to dress. Drying should be done quickly and thoroughly and there should be no loitering at the bathside once the lesson is over. The points of personal hygiene can be established as a drill, nose blowing, visit to the lavatory, footbath or shower, all done without loss of time but not hurriedly executed in a mad rush to be first in the pool.

Supports

If the lesson has been well prepared by the teacher, time will be saved on class organization and if the teacher is wise he will dispense entirely with the anachronism of 'human supports'. This method of class instruction is certainly the greatest time waster. No child has ever learned to swim, or improved his own stroke, while he has been valiantly, but vainly, supporting his partner and it is very doubtful

whether the supported child has derived any benefit, since it is rare for the supporter to hold his colleague in the correct position. The wise teacher will insist on the water supporting the whole class, and dispense once and for all with a valueless method. When the class are sufficiently water confident, the use of floats should be encouraged as a means of isolating one set of limbs while the swimmer concentrates on a movement by the other set. Floats are not a substitute for the support that the swimmer will obtain naturally from the water.

Purposeful Activities

Activities without a purpose should be discouraged. The teacher's aim should be to teach swimming and diving, not to introduce a series of playground games into the swimming pool. Every activity practised in the pool should have a direct bearing on some aspect of the work and if it does not serve this purpose it is better left out. This does not militate against enjoyment; children enjoy learning skill practices if they are presented properly.

Land Drills

Another method of wasting 'water time' is the performance of so-called land drills and land exercises on the bath side. No one ever learned to swim without going in the water and, since the average child has so little time at the pool under instruction, it is folly to waste this time by performing exercises on land. The land drills that are often advocated for swimming are of little value. Physiologists and psychologists agree that a skill learned *out* of its medium is not transferred when performed *in* its medium.

Teach the skills, the tracks of the limbs, the body positions, the co-ordinations *in* the water. If land exercises

need to be performed to help flexibility they should be taught in the gymnasium or playground, not as part of the swimming lesson.

Preparations for the First Visit

Much time can be saved by preparing a class for its first visit to the bath. Some of the elementary water confidence exercises can be practised at home, immersing the head, blowing out under water, and learning to keep the eyes open while the head is immersed. If the beginner arrives at the pool capable of performing these exercises, then more time can be spent on less elementary facets. The teacher can outline the geography of the pool in the classroom so that on their first visit the pupils know where they are to change, where the lavatories and footbaths are, and the relative positions of the deep and shallow ends. The class can also be divided, perhaps somewhat arbitrarily, into competence groups. The teacher can find out who are the non-swimmers, who are capable of jumping in, and who have already learned to dive. This will form the basis of the first activity groups and prevent the sorting out that one so often sees while the water is waiting to be used.

The Attitude of the Teacher

No self-respecting teacher should attempt to instruct a class in his everyday clothes. It is essential for the teacher to change, and if his task is to teach beginners he should wear a bathing costume with a track suit top. The beginner will be nervous at first and the fact that he can see that the teacher is changed and presumably willing to go to his aid should he require it, is of some psychological importance to the child. The teacher should attempt to instil confidence into the class, his manner should be pleasantly firm,

and he should create an atmosphere of purposeful enjoyment. It is only on very rare occasions that he should enter the water, for it is impossible to control a class from the water. But he *should* hold a life-saving award, or, at the very least, have a sound knowledge of resuscitation.

The Incentive Method of Teaching

If the teacher's aim is to raise the general standard of swimming, his class organization will be based on the premise that *every child should improve with every lesson*. Once he has been able to assess the ability of the members of his class he should divide them into groups on an ability basis, and to each group he should allot specific tasks that will lead to improvement. When any child has performed confidently and correctly all the tasks allotted to his particular group he should be moved into a higher group and given another series of tests to accomplish.

The tests for each group must be carefully selected, aiming throughout at progressive improvement, and no child should be attempting tests that are beyond him. The number in each group should be relatively small. The lower ability groups will always be numerically stronger, and these will call for more supervision and more instruction, but the teacher must see each group at work during every visit to the pool, and must be prepared to assist any child who is having difficulty with any particular test and to instruct a whole group in a new activity. 'The teacher must also test the performance of the swimmer before he is promoted.

SPECIMEN OUTLINE OF INCENTIVE TESTS

- | | |
|----------------|---|
| <i>Group I</i> | (a) Jumping in at shallow end – unassisted. |
| (Beginners) | (b) Head completely submerged – blowing |
| Shallow end | out. |

- (c) Prone floating, then regaining standing position.
 - (d) Supine (on your front) floating, and regaining standing position.
 - (e) Mushroom floating and sinking (exhaling)
 - (f) Prone (on your back) glide from mushroom floating.
- Group II*
Shallow end
- (a) Retrieve object from bottom of bath.
 - (b) Hand stand.
 - (c) Push off and glide (prone), stand up.
 - (d) Back push off and glide (supine), stand up.
 - (e) Crouch (on bathside), push off, and glide.
- Group III*
Deeper water
- (a) Push off, glide, front crawl leg action (one length).
 - (b) Back start, glide, back crawl leg action (one length).
 - (c) High crouch, push off, and glide.
 - (d) Surface dive to touch bottom of pool.
- Group IV*
Deeper water
- (a) Front crawl - complete stroke (one length).
 - (b) Back crawl - complete stroke (one length).
 - (c) Racing dive.
 - (d) Back crawl start.
 - (e) Breast stroke leg action - using float (two widths).
 - (f) English back stroke leg action (two widths).
- Group V*
Deep end
- (a) Front crawl (two lengths).
 - (b) Back crawl (two lengths).

- (c) Breast stroke (complete) (one length).
- (d) English back stroke leg action (one length).
- (e) English Header or Swallow Dive.

Group VI 'Schools Medallist' Award of Amateur
 Deep end • Swimming Association, viz.:

- (a) Front Crawl or Breast Stroke (100 yards).
- (b) Back Crawl (fifty yards).
- (c) Stroke not used in (a) (twenty-five yards).
- (d) Surface dive to recover object in six feet of water.
- (e) English Header from not less than four feet either from board or springboard.

PLUS (f) Royal Life Saving Society first method of release and rescue.

The above are only specimen tests and the teacher will establish his own dependent on the ability of the class and the facilities at his disposal. The higher-standard groups will contain few members but it is these few that are so often neglected. They must be given an incentive for further improvement.

The activities should be tested at one and the same time and a high standard of performance demanded. The tests can be written on cards by the members of the group as an *aide memoire*. A better method is for them to be printed on boards and placed where they may be read by the members of the group to which they apply.

This method of providing an incentive does NOT exonerate the teacher from doing his job – teaching. He should teach each group, obviously not all during the same lesson, but should move from group to group as the need

arises. Much of his time at first will have to be spent with the less advanced, but this should not prevent him from helping the others, even if it means leaving the beginners' group occasionally in the charge of a competent swimmer, who will enjoy himself helping his class-mates by demonstration and advice. Frequently, too, the teacher should teach the class as a whole, no swimmer is so good that he cannot benefit by a physical recapitulation, particularly of some of the more 'advanced' confidence exercises or the skilled movements. Many teachers who use this incentive method take the class as a whole for the first few minutes of each lesson, thus providing revision and a warm-up for the better performers and material for the weaker ones to practise when they are divided into groups.

Fitness for Swimming

SWIMMING in itself is a means of maintaining fitness. Many people swim for the sheer joy of it and because they are convinced that regular swims help them better to carry out their daily pursuits and thus lead a fuller and more enjoyable life. They swim to keep fit. On the other hand, the better you swim the more you enjoy your swimming and, if there are other means of helping you to improve once you have mastered some strokes, they should be considered. Not all will want to practise them, they will consider that their regular swims are sufficient in themselves. Others might feel that perhaps a little extra mobility in some of the joints, or added strength in some of the muscle groups and a greater power of endurance might give more zest to their swimming. Competitive swimmers, if they are to succeed in today's 'razor-edge competition', will obviously not ignore any means that will enhance their chances of success. They will wish to get fit to swim.

Some of the suggested methods of achieving a greater standard of physical fitness are given below in outline. Should you wish to pursue them in greater detail you should seek the advice of a good coach or join a swimming club which uses them for winter training.

FLEXIBILITY OR MOBILITY

Throughout the descriptions of the various strokes, emphasis has been laid on the fact that shoulders, hips and

ankles should be loose. Crawl stroke demands a loose hip swing and loose ankles; breast stroke requires much play in the ankle and knee joints, and the arm action of butterfly calls for a supple shoulder girdle and mobility in the trunk. Many land exercises help to give this mobility and may be practised at home.

(a) *For the ankles*

1. *Standing* – heel raising and lowering, rising as high as possible on your toes.
2. *Sitting – foot raised* – ankle circling clockwise and anti-clockwise attempting to describe a wide circle with your big toe.
3. As in 2, but use your hands to help the movement.
4. *Sitting* – ankle stretching forwards and backwards with use of hands. (Hold foot with hands and bend and stretch the ankles.)
5. *Skippping* with wide variety of ankle movement.
6. *Lying, face downwards* – toes extended. Trunk raising and lowering.
7. *Kneeling* – sit back on heels and press body weight on to the insteps – later repeat with trunk leaning backwards.

N.B. : All the above should be performed with bare feet.

(b) *For the hip joints*

1. *Standing* – single leg swinging forwards and backwards.
2. *Standing* – high kicking.
3. *Leaning forwards, arms supported on chair back* – leg kicking backwards.

4. *Back lying, seat supported on elbows* – cycling.
5. *Bent front support* (lie face downwards, raise yourself on your arms and bend your hips) – stretch hips towards floor and head backwards followed by raising the seat in the air and head between the arms.

(c) *For the shoulder girdle*

1. *Standing* – loose arms swinging forwards and forwards upwards with heel raising.
2. *Standing* – single arm circling forwards, left and right followed by both arms circling forwards.
3. As in 2, but arms circling backwards.
4. *Trunk leaning forwards with wrists resting on table* – trunk pressing downwards and relaxing rhythmically.
5. *Standing* – arms bent across the chest, elbows circling backwards, followed by arms flinging sideways.
6. *Standing* – holding stick or broom handle, hands wide apart, arms circling and swinging in different directions – as mobility increases the hands should be brought closer together.

STRENGTH

The muscle groups that are used to propel the body in all strokes have to be essentially strong, they are constantly working against the resistance of the water, and the more power that they can exert against this resistance, the greater the propulsion (always providing that the power is applied at the right time and in the right direction). In order to strengthen these muscle groups many types of exercise have been devised whereby the muscles contract against resistance. Medicine ball, strand pulling and static exercises have been used, but the tendency today is for the swimmer

to use weight training as a means of developing strength. By this method it is possible for the load, or the resistance, to be progressively increased as the muscle groups become more powerful. The weight training exercises must be carefully carried out and the movement performed during the exercise should be closely related to the movement performed by the swimmer. Before attempting vigorous strengthening work you must make sure that the body is warmed up sufficiently and some of the mobilizing exercises could be used for this purpose.

Examples of weight training exercises for the swimmer

1. *High pull up* using a barbell. Grip the bar with an overgrasp, feet aside, insteps under the bar, arms and back straight and head up. Pull the bar high above the head straightening the legs and rising on to the toes then return to the starting position. Repeat briskly. This is best done by using a light weight and should be carried out in three series of eight repetitions with a rest between each series.
2. *Leaping Squats*. Barbell placed behind the neck and knees fully bent. Leap forwards and return to squat position. Four series of five repetitions.
3. *Bent Forward, Backward Swing* - with dumbbells. Bend the trunk forwards allowing the arms to hang vertically downwards. Swing the arms backwards to the thighs, lower the arms slowly and repeat. Three series of eight repetitions.
4. *Decline Press with dumbbells*. Lie on an inclined bench (45 degrees) with a dumbbell in each hand vertically above the shoulder. Lower the arms backwards to the floor and then pull strongly upwards to the starting position. Three series of ten repetitions.

Points to note

1. Start with light weights until the exercises are known, then gradually increase the weight as strength develops.
2. Perform the exercises briskly.

(These exercises were kindly suggested by Mr. A. Murray, National Coach of the British Amateur Weight Lifters' Association.)

ENDURANCE

Many swimmers and swimming clubs practise Circuit Training as a means of developing muscular endurance, i.e. the ability of the muscle to perform work over long periods. This is an ideal form of training for the winter months and follows the same principle of progressively increasing the load as in weight training, but whereas the weight training exercises are designed to provide strength for specific movements, Circuit Training is of a much more general character. The exercises in the circuit should be strenuous and yet not difficult to learn. The swimmer is tested at each of the exercises in the circuit, there may be six or more. The aim of the test is to find out the maximum number of times that he can perform the exercise correctly until fatigue prevents him, or in the case of those exercises where many repetitions are possible before the onset of fatigue, e.g. bench stepping, the number of times that he can perform the exercise correctly in a given time (say two minutes). The score that the swimmer achieves at each piece of work is recorded and divided by two. This gives the number of times that each particular exercise should be performed each time the swimmer comes to that exercise as he performs the whole circuit three times. In order to make circuit training a test of endurance the three circuits have to be completed in a fixed time, so that the muscles are constantly

performing work over a relatively long period with very little rest, just as they are when you swim a distance in the baths. This time factor makes a demand not only on the muscular, but also on the circulo-respiratory system. After a period of training the swimmer is again tested and the number of repetitions is increased, where improvement is noted. The ability to measure improvement is a great incentive to further effort.

*Circuit Training Exercises for the swimmer
where no apparatus is available*

1. *Press-ups* – front support position, arms bending and stretching.
2. *Bench Steps* – stepping on and off a chair continuously for a definite period of time, – say sixty seconds.
3. *Dips* – stand between the backs of two chairs, support yourself by holding the backs of the chairs, then bend and stretch your arms without the feet touching the floor.
4. *Trunk Curls* – lie on the floor on your back, hands resting on the thighs – curl the trunk so that the hands reach down the thighs to touch the knees and return to back lying. (Do not lift the trunk too high.)
5. *Leg Raising* – lie across a table or bed, face downwards, so that the hips are just clear of the edge. Raise the legs vigorously to touch your back with your heels.
6. *Dorsal Lifts* – lie on the floor on your back, fixing your feet under some piece of furniture. Raise and lower your trunk. (Start with your hands by your hips and later raise them above your head.)

The system of circuit training which has become an accepted part of fitness training for many sports clubs,

athletes and schools was devised by members of the Physical Education Department of Leeds University. There is an excellent book written by Messrs. Morgan and Adamson of Leeds University, *Circuit Training*, published by G. Bell & Sons. This book gives in detail the method of circuit training with lists and illustrations of many varied exercises. Those of you who wish to know more of circuit training are strongly urged to read this book.

Speed and Endurance – Interval Training

Track athletes have for years followed a system of preparation for competition known as Interval Running. Mr. A. D. Kinnear, the National Technical Officer of the Amateur Swimming Association, has adapted this system for the swimmer's needs. The aim of interval training, or the 'controlled interval method', is to develop both speed and endurance. A swimmer who is training to compete in a 440 yards race might have as his ultimate time 4 minutes 40 seconds, which would mean swimming 4×100 yards in 1 minute 10 seconds or 8×50 yards in 35 seconds. At the beginning of the training period the swimmer would be encouraged to swim 50 yards in, perhaps, 39 seconds, with an interval for recovery of 1 minute, this to be repeated at least eight times so that the actual race distance is covered. As the training period progresses the time for each 50 yards would be decreased, and also the length of the interval, until the total time taken for swimming the complete distance is actually less than the swimmer's aim of 4 minutes 40 seconds.

By regular practice at this type of training the swimmer's speed improves and he develops the necessary endurance. The controlled interval method of training is still in a stage of experiment, but it is highly probable that it will become

just as acceptable to the swimming world as it has become acceptable to hosts of middle distance track athletes.

The above methods of assisting you to become fitter for swimming are given very briefly. There is not space in a book of this nature to go into greater detail. If you feel that by practising them you will enjoy your swimming more, do not hesitate to carry them out, but never lose sight of the fact that they are *not* a substitute for swimming, and at best they can only be ancillary to better swimming performance.

Progressive Practices for Your First Visits to the Baths

LEARNING to swim is an individual matter and it would be impossible to be dogmatic about any one person's rate of progress. The following schedules of practices are placed in progressive order and divided into 'visits'. Experience has shown that some people progress much more rapidly, and can move on to new practices much sooner than in the 'visits' indicated. The main points to remember are not the number of visits to the bath but:

1. Regular practice is essential. If possible, go to the baths every day for a fortnight while you are learning the early stages.
2. Do not hurry the process – be sure of one practice before moving on to the next.
3. Constantly revise the earlier practices.
4. Have patience with yourself.

THE FIRST VISIT

(see Chapter 2 – geography of pool, etc.)

1. Jumping in, at first with support of a friend, or holding bathside. *See p. 23.*
2. Standing in the water – shoulders down, chin on surface. *See p. 24.*
3. Relaxed arms floating. *See p. 25.*
4. Hand and arm pressures. *See p. 25.*

5. Hand and arm pressures, moving forwards. *See p. 25.*
6. Moving forwards as in 5, but arms recovering out of water. *See p. 25.*
7. Submerging the face and blowing out. *See p. 24.*
8. Lying on the water – *standing up* (much practice here). *See p. 26.*
9. Push from bottom of bath and glide – stand up. *See p. 26.*
10. Increasing distance of glide. *See p. 26.*
11. Falling forward and gliding. *See p. 26.*

THE SECOND VISIT

1. Jumping in and head immersion – practise this three or four times. *See p. 24.*
2. Jump in – head immersion – arm pressures walking across the pool, get out and jump in again. *See p. 24.*
3. Revision of prone gliding and standing up. *See p. 26.*
4. Mushroom floating. *See p. 27.*
5. Mushroom floating – exhaling and sinking. *See p. 28.*
6. Mushroom floating at bathside – push off, glide, and stand up. (Repeat frequently.) *See p. 28.*
7. Lie on back from 'back sitting' position and stand up. Practise repeatedly. *See p. 30.*
8. Push from bottom of bath – glide on back – stand up (arms kept to side of body in glide). *See p. 30.*
9. From side of bath gripping hand rail – gently push away and glide on back – stand up. *See p. 31.*
10. From bathside – push away with increasing power – glide – stand up. *See p. 31.*

THE THIRD VISIT

1. *Revision* of work done in previous visits – this should be done systematically – you will stay in the water longer now so there is more time.
2. From bathside – swing arms above head and push off and glide with arms extended.

3. Mushroom floating – push off – glide to bottom of pool.
4. As in 3, but during glide lift legs out of water and touch bottom of pool. *See p. 29.*
5. Hand standing. *See p. 29.*
6. Hand standing – prone gliding to surface. *See p. 29.*
7. Hand 'standing – falling over' (breathe out through nose) – floating on back.
8. Sit on step or bath edge, feet on rail – push off and glide – (head down between arms). *See p. 32.*
9. Crouch on side of bath – push off – glide. *See p. 34.*
10. Crouch on side of bath – push off – glide, sweep arms sideways to touch bottom of bath – glide – stand up. *See p. 34.*

THE FOURTH VISIT

1. Jump in – revise gliding and gliding to bottom of bath.
2. Crouch push off from side – glide and stand up.
3. Crouch push off and glide – attempting as long a glide as possible.
4. Crouch push off – glide – emphasize the 'stretch'.
5. Body and limb stretching movements on bathside. *See p. 34.*
6. Racing entry – repeat until entry is a good one. *See p. 36.*
7. Racing entry – friend giving commands.
8. Racing entry – long glide – stand up.
9. Back crawl start – long glide – stand up. *See p. 31.*

THE FIFTH VISIT

1. Racing entry – long glide.
2. Standing on one leg – loose leg swing – walking action. *See p. 45.*

3. Push off – glide – double leg action front crawl. *See p. 46.*
4. Push off glide, leg action front crawl, raising head to breathe. *See p. 48.*
5. *Using float* – push off – leg action front crawl, arms extended in front of head resting on float – widths.
6. Back glide followed by leg swinging – look at your toes. *See p. 47.*
7. Back crawl start – back glide – leg action – widths. *See p. 49.*
8. Prone gliding – change to gliding on back.
9. Leg action front crawl, roll over on to back, leg action back crawl.

- THE SIXTH VISIT

1. Racing dive – glide – width of front crawl leg action. Repeat from opposite side of bath.
2. Crawl – single arm action from standing position. *See p. 51.*
3. Crawl – alternate arm action – start from standing position – vigorous arm movements to take you across the bath (keep trunk well forward). *See p. 51.*
4. Crawl – alternate arm action with breathing to one side. *See p. 55.*
5. Push off – glide, crawl leg action, one complete arm cycle with breathing. Concentrate on exhalation. *See p. 55.*
6. Push off – glide, crawl leg action – three complete arm cycles.
7. Back crawl start – glide – leg action – widths.
8. Back crawl arm action from bathside, toes under rail. *See p. 57.*

THE SEVENTH VISIT

1. Racing entry – revise glide and crawl leg action.
2. Crawl leg action – three complete arm cycles with breathing.
3. Crawl leg action with arms and breathing – one width.
4. Back crawl arm action from rail.
5. Push off – back glide – leg action and one complete arm cycle – back crawl.
6. Push off – back glide – leg action and three complete arm cycles – back crawl.
7. Widths back crawl concentrating on inhalation and exhalation. *See p. 60.*
8. Widths back crawl concentrating on continuous arm action (speeding up recovery).

THE EIGHTH VISIT

1. Revision of back crawl leg action – widths.
2. Back crawl start – glide – leg action followed by arm action – widths.
3. Back crawl complete stroke, watching leg action. *See p. 58.*
4. Front crawl – widths – leg action only.
5. Front crawl complete stroke – three arm cycles.
6. Front crawl complete stroke – widths – concentrating on correct breathing.
7. Front crawl complete stroke – concentrating on vigorous pull and push with arms.
8. Back crawl complete stroke – change to back glide – turn over to front glide, followed by front crawl complete stroke.

Survival Swimming

IN the opening chapter it was suggested that swimming was an essential prerequisite for all who wished to enjoy water activities, and indeed it was stressed that such activities were open *only* to the competent swimmer. Hitherto most authorities have accepted the ability to swim fifty yards as being a satisfactory indication of competence, but in an emergency merely being able to swim such a relatively short distance might be of little practical value. All swimmers wishing to participate in water activities or anxious to add to their enjoyment of being in the water should attempt some of the tests for Proficiency in Personal Survival.

These tests have been drawn up by the Amateur Swimming Association. They are *not* a substitute for Life Saving, but survival swimming is complementary to Life Saving. The life saver is trained to go to the assistance of those in difficulties in water: he has been taught the fundamentals of approaching, grasping and, if necessary, towing to safety, and applying artificial respiration to the person in difficulties in the water.

The survival swimmer must practise certain realistic skills that will enable him to survive in an emergency in the water. Such emergencies occur through meeting an unexpected current, through strong waves, through injury, cramp or fatigue and the fifty yard swimmer who frequently struggles and gasps over his last ten or fifteen yards is ill equipped to deal with such emergencies.

A. DISTANCE SWIMMING

In an emergency the ability to swim half a mile or more or to swim for a definite period of time is an undoubted asset. You should attempt swimming distances by moving up and down the pool or swimming round the pool. To offset fatigue vary your stroke; breast stroke, back stroke and front crawl will obviously be used but do not be afraid to try the life saving back stroke or even the out-moded side stroke. Vary your distance swimming with a timed swim, attempting to keep moving in the water for as long as five minutes without stopping and at later visits to the baths increase the time. There is no need to worry either about style or speed; the object is to keep going as though you were in the water and were either awaiting rescue or swimming to the shore.

B. CLIMBING OUT OF THE WATER

After a timed or a distance swim you should attempt to climb out of the water unassisted. This might be necessary if you had to clamber aboard a boat or up a cliff. It is advisable to practise climbing out of the water at the deep end so that you begin to feel quite confident that after a long swim you would not be too tired to make good your escape.

C. SWIMMING IN CLOTHES

Survival swimming should be made as realistic as possible and it is therefore necessary for you to practise swimming in clothes. A pair of old pyjamas or an old shirt and pair of slacks are sufficient for this purpose. You will find that the clothes tend to impede your progress and reduce the distance or the time that you can swim. This is a good enough reason for you to practise this type of

swimming regularly; such practise will develop your endurance and give you increased confidence.

D. TREADING WATER

The ability to support yourself in a vertical position in the water by using the legs and arms or the legs only or the arms only is known as 'treading' water. It is invaluable in survival swimming where it can be assumed that there will be occasions when the swimmer will need to make use of his hands for undressing, for inflating a float, for tying knots, or for grasping a piece of wreckage. Practise treading water by using either the breast stroke leg action or the scissor kick—whichever you prefer. The arms perform a sculling action with the elbows kept close in to the sides. Use arms and legs simultaneously at first and then use your legs only. This will require a more rapid and vigorous leg action if your head is to remain above the water.

E. UNDRESSING IN THE WATER

Once you have become proficient in treading water, removing the clothing is not difficult. Apart from ridding yourself of the weighty clothes that have been impeding your progress through the water the discarded clothes may, in certain circumstances, be used as buoyancy aids. Once the clothes have been removed they should be placed on the bath side. Bath superintendents object, quite rightly, to articles of clothing lying on the bottom of the swimming pool.

F. USING CLOTHES AS FLOATS

The discarded clothing can be used as a float or buoyancy bag. The principle is based on collecting and then holding air in the clothing, either shirt, blouse or trousers

or even a pocket handkerchief. The air trapped creates a life buoy that will assist flotation. Some of the air will escape in time, but the garment can be reinflated indefinitely.

A float made from a pair of trousers is perhaps the most satisfying of all; one properly inflated pair of trousers can resemble two huge sausages which when placed on either side of the head provides a wonderful aid to buoyancy. While treading water the bottom of each leg should be knotted securely, the knot being tied as near to the bottom of the trouser leg as possible. Then hold the trousers over one shoulder, making sure that they are held by the waist band with the top of the trousers open so that when they are flung to the surface of the water air will be trapped in both trouser legs. Hold the top of the trousers in one hand to prevent the air escaping and use the garment as a float either behind your head, or between your legs.

G. ENTERING THE WATER

In survival swimming the head first entry that you have practised is not normally used, since entering unknown stretches of water by this method might prove hazardous. An emergency might necessitate entering shallow water from a height, there might be underwater obstacles that would make diving dangerous even if the water was known to be deep. It is necessary, therefore, for you to practise other methods of getting into the water.

1. A normal jump from the side of the bath.
2. A jump from a height of 6 feet into the deep end of the bath.
3. Step in from a height of 6 feet into the deep end.
4. Enter the water from a 'tuck' position, seat first.
5. Jump with legs apart (entry into shallow water from a height—the parting of the legs acts as a brake in the descent).

6. Enter from a height with your body erect, head up, legs and feet together, hands on thighs.

H. SUBMERGING

The ability to submerge and swim under water are necessary skills in survival swimming. It is conceivable that you might be swimming in water strewn with wreckage or with patches of thick oil on the surface through which you would not wish to swim. Your only means of avoiding such obstacles is to submerge and swim under them.

Head First. There are two accepted methods of submerging head first, one from the 'tuck' position where the knees are tucked into the chest and the other from the 'piked' or jack-knife position where the legs are kept straight and make an acute angle with the body by bending at the hips.

You should practise both methods from the glide position you learned in your early water confidence work. From the glide drop your head, 'pike' or 'tuck' with your legs, while you pull your arms, keeping them as straight as possible, back to the hips. Look at some object on the bottom of the bath and go as deep as possible, keeping your eyes open throughout.

Feet First. It is not always wise to dive head first even from the surface of the water; the water may be shallow and there would therefore be the danger of injury to your head or arms. Practise submerging feet first from treading water; press down with your arms to lift your head, shoulders and arms as far out of the water as possible. Your body will then descend. The descent can be accelerated by performing an inverted breast stroke arm action.

AWARDS FOR SURVIVAL SWIMMING

In order to encourage swimmers to practise survival swimming the Amateur Swimming Association has instituted a series of awards for those showing 'proficiency in personal survival'. The tests shown below must be carried out in the order set down and should be performed without pause. Any official of the A.S.A. will be pleased to examine you and if you intend taking part in water sports you should consider taking at least the Bronze Award.

THE AWARDS

Bronze Award

Dress: Men and boys in trousers and shirt or pyjamas; women and girls in dress, or slacks and blouse, or pyjamas.

1. Jump in from a height of not less than 6 feet.
2. Tread water for 3 minutes in a vertical position.
3. Undress in the water.
4. Swim 440 yards (any stroke), surface dive once during the swim and swim at least 5 yards of the total distance under water.
5. Climb out without assistance.

Silver Award

Dress: As for Bronze Award.

1. Jump in from a height of not less than 10 feet.
2. Swim 100 yards in less than 3 minutes.
3. Tread water for one minute in vertical position using one arm only, then tread water for 3 minutes in vertical position.
4. Undress in water.
5. Surface dive in 6 feet of water (a) head first (b) descending feet first and swim on each occasion approximately 5 yards before resurfacing.

6. Swim 880 yards (440 yards on the back, 440 yards on front or side).
7. Climb out from deep water without assistance.

Gold Award

Dress: Men and boys in long-sleeved shirt, trousers, pants, long-sleeved pullover and socks; women and girls in long-sleeved dress or slacks and blouse (long-sleeved), knickers, long-sleeved pullover, stockings or socks.

1. Jump from a height of not less than 10 feet.
2. Swim 100 yards in less than 4 minutes.
3. Tread water for one minute (hands clasped behind back)
4. Tread water for 4 minutes in vertical position.
5. Undress in the water.
6. Make a float from clothing and use it to float for 5 minutes without use of arms or legs, except when re-inflating where necessary.*
7. Swim 1,000 yards, surface diving during the swim 10 times head descending first and 10 times feet descending first, to pass through a hoop or tyre or ring the top of which is at least 3 feet below the surface. (The whole to be completed in 30 minutes.)
8. Climb out from deep water without assistance.

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